

CHAPTER III

RESEARCH METHODOLOGY

This chapter elaborates research procedure to find answers of research questions. This study focuses on investigating the effect of CIRC technique on students' reading comprehension of narrative text and students' participation in the classroom. This chapter consists of research design, variables, hypothesis, subject of the study, instrumentation, research procedure, and analysis procedure.

3.1 Research Design

Research design plays role as guidance to help researcher in finding the answer of research questions. Some designs of research have been formulated based on its research characteristics. Researcher uses quasi-experimental design since random test was not applied for both experimental and control groups of the research (Best, 1981)

It was stated in the previous chapter that this study is aimed at investigating whether CIRC technique is effective to improve students' reading comprehension. Two groups were compared to achieve this purpose. CIRC teaching technique was used in teaching reading comprehension of narrative text in experimental group. Moreover, lecturing technique was implemented in control group.

Table 3.1
Schematic Test of Research

Sample	Pre-Test	Implementation Process	Post-Test
Experimental group	Reading comprehension test	CIRC technique	Reading comprehension test
Control group	Reading comprehension test	Lecturing technique	Reading comprehension test

It can be seen from the table that pre-test is given to experimental and control group. To teach reading comprehension of narrative text, CIRC is implemented in experimental group. On the other hand, lecturing technique is implemented in control group. Observation to both groups is conducted during the implementation process to study student participation. After the implementation process, the post-test is conducted in both groups. This test is aimed at measuring the improvement of student reading comprehension of narrative text.

3.2 Variables

This research uses two kind of variables such as independent and dependent variable. The independent variable of this research was CIRC technique since the technique was the main variable of investigation (Hatch and Farhady, 1982:15). The dependent variable used in this research was students' reading comprehension of narrative text as realization of independent variables effect (Hatch and Farhady, 1982:15).

3.3 Hypothesis

The null hypothesis (H_0) and alternative hypothesis (H_1) of the research are stated as follows:

H_0 : There is no difference in student reading comprehension of narrative text between control and experimental group for students who received CIRC technique and those who did not. They belong to the same population.

H_1 : There is a difference in student reading comprehension of narrative text between experimental and control group for students who received CIRC technique and those who did not. They belong to different population.

However, this study works on the null hypothesis (H_0) meaning testing two-tailed hypothesis.

3.4 Subjects

3.4.1 Population

This research was conducted in one private senior high school in Bandung. Students of first grader were the total population of the research. The characteristics of the population are Indonesian native students in private school who attained the age around 16 years old.

3.4.2 Sample

Samples were selected by using purposive sampling technique. This research used two classes to represent characteristics of population. The two classes are X-3 as the experimental group and X-1 as the control group, and each class consists of 30 students.

3.5 Instrumentation

This research uses two instruments in collecting data to answer research questions. The two instruments are reading comprehension test and observation sheet. This sub-chapter discusses the instruments used for the research.

The first instrument is reading comprehension test of narrative text. The test was given to both experimental and control groups. The test consisted of 20 multiple choices related to narrative texts. In designing reading comprehension test, syllabus that described teaching-learning purpose was used as reference.

Reading comprehension test was used as pre-test and post-test to both groups. Pre-test is aimed at measuring students' innate ability in reading comprehension before the implementation process and the post-test is aimed at discovering students' reading comprehension after the implementation process.

Table 3.2

Syllabus for 1st Grade Senior High School

Aspect	Competence Standard	Basic Competence	Indicators
Reading	5. Understanding the meaning of short functional text and simple essay in the form of report, narrative and analytical exposition in the context of daily situation and also to access knowledge	5.2 Responding the meaning of formal and informal short functional text (banner, poster, pamphlet, etc) by using various written language in the context of daily situation to access knowledge	1. Identifying elements of narrative text such as theme, character, setting and plot
			2. Identifying generic structure of narrative text
			3. Identifying vocabulary used in narrative text

Source: KTSP2007

Observation sheet as a second instrument examines process of teaching-learning activities in both classes. In the research studied about human behavior, another instrument is needed to look for information and enrich data.

The observation sheet consists of fourteen items of question. The observation sheet items were composed based on Cooperative Learning and CIRC theory that focused on students' participation. This observation was served in yes or no question.

The use of observation is aimed to finding out CIRC improvement of student participation in teaching-learning reading comprehension. In doing the observation, it is required three observers. They are students of English Education Department who accomplished subject of teaching-learning English.

3.6 Research Procedure

3.6.1 Organizing Teaching Procedure

Teaching procedure helps researcher to apply teaching technique in class situation. In organizing teaching procedure, the researcher conducted some steps such as compiling material, composing worksheet, and designing lesson plan.

The researcher compiled teaching material for both control and experimental group. The material was narrative texts that were taken from senior high school textbook.

To support teaching-learning activity in experimental group, the researcher composed worksheet. This worksheet helps students to write their understanding of narrative text.

Lesson plan was used as teacher guidance. Researcher made two different lesson plans that were applied in two different classes. In control group, the teaching stage is based on lecturing technique. Moreover, lesson plan for experimental group focuses on the implementation of CIRC.

3.6.2 Pilot Test

Pilot test was conducted before pre-test. This test is aimed at investigating validity and reliability reading comprehension test. This test consists of thirty multiple choice items related to narrative texts.

Table 3.3
The Items of Reading Comprehension Test

Indicators	Number of Test Item	Percentage
Identifying elements of narrative text such as theme, character, setting and plot	2, 4, 5, 7, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 23, 26, 29, 30	60%
Identifying generic structure of narrative text	3, 8, 21, 22, 24, 25,	30%
Identifying vocabulary used in narrative text	1, 9, 28,	10%

3.6.3 Treatment

3.6.3.1 Classroom Activities of Experimental Group

CIRC technique was implemented in teaching reading comprehension of narrative text in experimental group. The teaching phases in this group are making group, reading together, discussing text, checking vocabulary understanding, and accomplishing the test.

On the first phase in making group, teacher asks students to work in group that consisted of 4 or 5 students. This group is heterogeneous group where students' reading comprehension is not distinguished.

The second phase is reading together. In this phase teacher gives a piece of paper consisted of a narrative text to the students. Students are asked to read each paragraphs in sequence.

The third phase of the technique is discussing the text. Teacher asks students to discuss text and to write their understanding of the text in the worksheet.

In the fourth phase, students check their vocabulary understanding. They check each other understanding by pronouncing and writing the new sentence of the new vocabularies.

In the last phase, students are asked to accomplish the test. Students are doing reading comprehension test related to the text discussed. In this phase, students are not allowed to help each other.

3.6.3.2 Classroom Activities of Control Group

In control group, lecturing technique was used in teaching reading comprehension. The activities conducted in this group is presenting the lesson and accomplishing test.

The first phase of this technique is presenting the lesson. Teacher introduces topic and material of the lesson. Students listen to teacher who describes generic structure, character, plot, problems and solution of the text.

The last phase of this technique is accomplishing test. After taking notes of teacher explanation, students accomplishes reading comprehension test.

3.6.4 Managing Pre-Test and Post-Test

In purpose of measuring students' reading improvement in both groups, pre test and post were conducted. Pre-test was given before the treatment occurred. This test is aimed at determining students' equivalence of reading comprehension of both groups. After implementation process, post-test was given to students. Post-test that was conducted in both groups is aimed at determining improvement of students' reading comprehension.

Table 3.4

Time Table of the Study

No	Experimental Group		Control Group	
1	3 November 2011	Pre-test	3 November 2011	Pre-test
2	8 November 2011	The Jackal who saved the lion	8 November 2011	The Jackal who saved the lion
3	9 November 2011	The Necessity of Salt	9 November 2011	The Necessity of Salt
4	15 November 2011	The Fly and The Bull	15 November 2011	The Fly and The Bull
5	16 November 2011	The Indian's Fish	16 November 2011	The Indian's Fish
6	22 November 2011	Post-test	22 November 2011	Post-test

3.6.5 Observation Sheet

Researcher served observation sheet to examine the process of teaching learning. This observation sheet consists of students' activities that showed participation in teaching-learning activity. The observation was conducted during implementation of CIRC and lecturing technique in teaching reading comprehension of narrative text.

3.7 Analysis Procedure

3.7.1 Scoring Technique

Reading comprehension test used is in the form of multiple choices. Reading comprehension could be tested by measure right answer of test items (Hidayat, 1994:65). Students' score of reading comprehension was equal to the right answer of test item given. The formula was presented below:

$$S = R \times s$$

S = Score

R = Right answer

s = score quality

(Hidayat et al, 1994:66)

3.7.2 Pilot Test Analysis

To investigate the feasibility of reading comprehension test used, it was conducted some tests. This session provides the result of statistic computation of validity and reliability test.

Validity test was conducted to check instrument accuracy in measure the data (Sulistyo, 2010). Test items in instrument should collect information which is needed by researcher. Validity instrument could be determined in relating score items and total score. This calculation is known as *Pearson product moment correlation*. SPSS 16 for windows calculated the validity score. The result of the calculation was categorized based on level of raw score (Sig.) of each test items. The output of the calculation is presented in the following table.

Table 3.5
Test Items Validity

Test Item	Raw Score	Interpretation
-	0.800-1.00	Very High
4, 7, 9, 11	0.600-0.800	High
2,3,12,14,16,17,18,21,22,23,24,25,26,28	0.400-0.600	Moderate
1,6,19,27	0.200-0.400	Low
5,8,10,13,15,20,29,30	0.00-0.200	Very Low

It can be seen from the table that 4 test items (13.33%) are on the high level of validity interpretation. 14 test items (46.67%) are interpreted as moderate level of validity. 4 test items (13.33%) include in low interpretation. Moreover, there is 8 test items (26.67%) which belong to very low interpretation. Test items

included in the very low level was not used for further reading comprehension test. Two items in the low level was corrected in order to keep these items purpose. Thus, reading comprehension test of narrative text used in this research consisted of 20 test items.

To check instruments consistency (Sulistyo, 2010), researcher conducted reliability test. Reliability test was calculated by *Spearman-Brown* formula (split-half). This calculation of reliability used SPSS 16 for windows.

To measure reliability of the test instrument, *Spearman-Brown coefficient formula* is used in alpha level 0.05. The result of calculation is presented at the following table.

Table 3.6

Reliability Statistics

Cronbach's Alpha	Part 1	Value	.719
		N of Items	16
	Part 2	Value	.526
		N of Items	15
	Total N of Items		31
Correlation Between Forms			.807
Spearman-Brown Coefficient	Equal Length		.893
	Unequal Length		.893
Guttman Split-Half Coefficient			.729

It can be seen from the table that r_{obt} is 0.893. The table presented by Arikunto shows that the r score is included in the high level of interpretation. Therefore, this test is reliable to be used for following reading comprehension test.

3.7.3 Data Analysis of the Pre-test

In analyzing score on the pre-test and the post-test, researcher used *t-test* formula for independent sample test. Before conducting *t-test* of post-test score, researcher find out the computation of pre-test score. Calculation on pre-test is aimed at investigating the equivalence of student reading comprehension score between the groups. Researcher conducted normality distribution test and variance homogeneity test to fulfill the assumptions underlying *t-test* (Hatch & Farhady, 1982).

Normality of distribution test is aimed at showing that sample taken is normally distributed. SPSS 16 for windows calculated this test. The calculation steps of normality distribution test are stating null and alternative hypotheses, stating the alpha level, calculating normality of distribution and comparing Sig.

Kolmogrov Smirnov was used to measure normality of distribution. The null hypothesis states that the students' reading comprehension score in control and experimental group are normally distributed. Level of significance used is $\alpha = 0.05$. This test works on the null hypothesis.

The result of computation of normality of distribution shows that probability score of normality distribution in control group 0.147 and experimental group 0.200. Since $p > 0.05$, the null hypothesis is accepted. Thus, it can be concluded that the score in both groups are normally distributed.

Homogeneity test is aimed at studying whether the sample has equal variance from the population. The steps to conduct this test are stating hypotheses, stating alpha level, calculating homogeneity of variance, and stating conclusion.

In order to measure homogeneity of pre-test score in both groups, *Levene* formula was used. The null hypothesis stated that the variance of students' reading comprehension score in control and experimental group are homogenous. Level of significance used is $\alpha = 0.05$. The result of computation of homogeneity of variance shows that the score of Sig. is 0.664 which is higher than 0.05. It means that the null hypothesis is accepted and the score of variance in control and experimental group are homogenous.

After meet the assumption in conducting t-test, the independent t-test of pre-test score can be conducted. As stated above that the purpose of this test is to measure the equivalence of students' reading comprehension in both groups, namely X-1 and X-3. To see the different adjustment level mean of two groups, this research used some steps to calculate the T-test, such as determining hypotheses, determining alpha level, calculating T-value, and interpreting data.

The hypothesis established in this analysis is null hypothesis. It states that there is no difference between students' reading comprehension in control and

experimental group. Level of significance 0.05 was selected. The null hypothesis is rejected when t_{obt} was equal to or greater than t_{crit} . Result of the computation can be seen in the following table.

Table 3.7
Independent Samples Test of Pre-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Score	Equal variances assumed	.191	.664	.921	58	.361	3.333	3.619	-3.910	10.577
	Equal variances not assumed			.921	57.381	.361	3.333	3.619	-3.912	10.578

In this computation alpha level used was 0.05. It can be seen from the table that t_{obt} score is 0.921. In the $df= 58$, t_{crit} score is 2.000. The null hypothesis is accepted because t_{obt} is less than t_{crit} ($t_{obt} < t_{crit}$). Thus, it can be concluded that there is no difference between students' reading comprehension in control and experimental group. Therefore, X1 and X3 are equal hence it can be established as sample of this research.

3.7.4 Analysis of Observation Sheet

Observers filled in observation sheet to determine students' participation in teaching-learning activity when Lecturing technique and CIRC was implemented. Observer could note students' activities which shows the participation during teaching-learning activities. The result of observation sheet shows observers opinion whether there is student activity in giving classroom participation. Control and experimental group activities were compared to investigate the difference of students' participation in both groups. The analysis of student participation was categorized in giving opinions, answering questions, making comments, talking about the topic, participating in discussions, and asking questions. This observer opinion about student participation in both groups is presented by drawing charts and concluding the finding.