CHAPTER III
METHODOLOGY

This chapter discusses research method in this study including research design, population and sample, data collection and data analysis.

3.1. Research Design

This research employed quasi-experimental design. Quasi-experimental design is widely used in educational setting because of the compulsion to use the preexisting classes organized by school (Ary et al., 2010; Creswell, 2012). The researcher did not have the freedom to randomized students into control and treatment group. Therefore the researcher needed to make sure that the classes selected as sample have similar ability in reading comprehension. In this research, a pre-test and post-test design with a control group was used.The 2 classes selected were given treatment by using student-selected and teacher-assigned group of collaborative strategic reading and 1 class served as the control group received traditional teaching method. The pre-test and post-test control group design allowed the researcher tocompare the effectiveness between the control and experimental groups in order toinvestigate any effect of CSR on EFL learners' reading comprehension

Table 3.1Research Design

Class	Pre Test	Independent Variable	Post Test
E	Y_1	X_1	Y_2
A	Y_1	X_2	Y_2
C	Y_1	-	Y_2

Table 3.1.shows that all the classes (E,A,C) were given the same pretest (Y_1) to find out their initial ability in reading comprehension. Afterwards, Class E were given treatment by applying student-selected group of collaborative strategic

reading (X_1) as much as 4 meetings in reading class, Class A were treated using teacher-assigned group of collaborative strategic reading (X_2), and Class C which served as the control group, were taught using conventional individual teaching method. To find out whether the treatment yields significant result, posttest were given to all of the classes (Y_2). The research procedure is shown on the following figure:

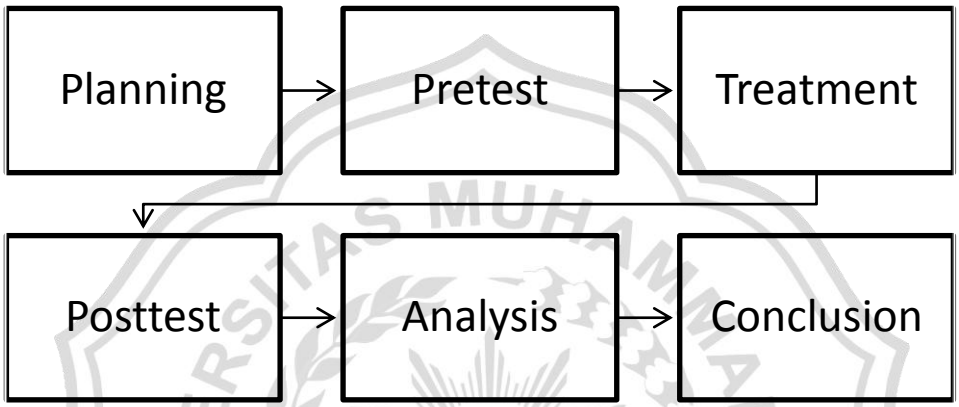

Figure 3.1Research Procedure

After the pretest had been conducted, the two experiment groups (class E and A) were then given the treatment while the control group (class C) underwent the reading class as usual. The reading lesson in control group was done by applying individual conventional reading instruction. The teacher asked the students to read the text, find difficult words in the dictionary, and answer the questions that follow. The teacher then lead the class to discuss the text.

On the other hand, class A was given treatment by applying teacher-assigned group of collaborative strategic reading. The teacher grouped the students by their mixed ability, so the composition was very much the same for every group, one high proficiency students, two average proficiency students, and one low proficiency student. After the groups had been set, they were given different roles (*leader, clunk expert, announcer, encourager, reporter, and time keeper).* Students may change roles for every meeting. The reading lesson was

also carried out by applying the four steps of CSR which was preview, click and clunk, get the gist, and wrap up.

Similar to Class A, Class E also applied CSR in the reading class. However at the beginning of the class, the teacher gave students freedom to choose their own group member based on preference. If there were some students left out without group, the teacher would assign them to groups with less members. In this method of selection, the teacher could not control the ability of students in each group. The post test was given to control and experiment group after they had completed 4 reading class meetings (see table 3.2. for detail)

Table 3.2Teaching Procedure

STEPS	SSG-CSR	TAG-CSR	CONTROL
Preparation	Students chose group members based on preference	Teacher assigned students into certain groups. The groups consisted of 2 males and 2 females,1 high, 2 medium, and 1 low ability students.	No grouping needed
	Students divided the roles as stated in CSR	Students divided the roles as stated in CSR	Teacher control the class. No roles
Pre-reading	Students previewed the text	Students previewed the text	Students previewed the text
Whilst-reading	Students read the text, applied *Click* and *clunk* and *fix up* strategies	Students read the text, applied *Click* and *clunk* and *fix up* strategies	Students read the text and found difficult words in dictionary
Post-reading	Students applied *get the gist*	Students applied *get the gist*	Students answered the questions following the text
	Students applied wrap up Students presented the questions they made and discussed the answers with other groups. Teacher facilitated the discussion	*Students applied wrap up* Students presented the questions they made and discussed the answers with other groups. Teacher facilitated the discussion	- Teacher discussed students' answer classically

3.2. Population and Sample

The population of this research was the ninth grade students of UPT SMPN 5 Gresik. The students had spent their first year together in the seventh grade. They were randomized on their second year, and then put back together on their third year in the ninth grade. They were divided into 10 classes (A-J) with the total of 346 students consisting of 168 males and 178 females. To obtain the sample of this study, the result of National Examination try out measuring students reading comprehension was taken into consideration. The try out was carried out by school in the beginning of the first semester. The mean score of the try out result is presented on the following table :

Table 3.3Try Out Result

A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**Overall Mean**
29.22	25.09	30.50	28.75	30.69	26.67	26.00	27.18	34.06	40.00	29.8

Based on the table above, Class IX A, IX C, and IX E were taken as samples because their mean scores were the closest to the mean score of the whole population and they were considered to have similar ability. The three classes were then tested for their homogeneity using one-way ANOVA. The result of homogeneity of Class IX E, IX A, and IX C are illustrated on table 3.4

Table 3.4 Homogeneity test result

	Levene Statistic	df	df2	Sig
Try Out	.300	2	104	.741

The homogeneity test results showed that sig > 0,05 which means that the three classes (IX E, IX A, and IX C) are homogeneous. The detailed statistical result is illustrated in appendix 1. It suggested that the three groups were eligible sample because they had similar ability. Thus, Class IX E was treated using student-selected group of CSR (SSG-CSR), Class IX A was treated using teacher-assigned group of CSR (TAG-CSR), and IX C served as the control group.

3.3. Research Variables

A variable is a characteristic or attribute of an individual or an organization that (a) researchers can measure or observe and (b) varies among individuals or organizations studied(Creswell, 2012). The variables in this research are divided into dependent variable and independent variable.

3.3.1. Independent variable

Independent variable is an attribute or characteristic that influences or affects an outcome or dependent variablesuch as the treatment given to the experimental group. There are two independent variables in this study, they are student-selected group of collaborative strategic reading and teacher-assigned group of collaborative strategic reading.

3.3.2. Dependent variable

A dependent variable is an attribute or characteristic that is dependent on or influenced by the independent variable. One of the examples of dependent variable in education research is achievement scores on a test. In this study, the dependent variable is students' reading comprehension.

3.4. Data Collection Method

This research utilized pretest and posttest as the data collection method to measure the effect of collaborative strategic reading on students reading comprehension as well as to compare the result of the student-selected group and teacher-assigned group.

3.4.1. Instrument

To collect the data, multiple choice reading comprehension questions were used as the instrument. The test items are combination of national examination reading comprehension questions and questions developed by researcher. The researcher needed to add self-developed questions in order to all the pre and post test questions meet the indicator of reading comprehension namely finding main idea, finding detailed information, understanding word meaning, identifying sequence, making inference, identifying cause and effect relationship, drawing conclusion and making prediction. The detailed test items for pre and posttest are illustrated as follows:

Table 3.5Distribution of Test Items For Reading Comprehension Pre Test

LEVEL OF READING COMPREHENSION	COMPONENTS	NUMBER		TOTAL
		NARRATIVE TEXT	REPORT TEXT	
Basic Comprehension	Main Idea	8	16	2
	Detail Information	9	17,20	3
	Word Meaning	1,10	18,21	4
	Sequence	2,11	-	2
Higher Comprehension	Inference	3,14	22	3
	Cause and Effect	4,13	23	3
	Drawing Conclusion	5,12	19	3
	Making Prediction	6,15	24	3
Complex Comprehension	Writer's purpose/intention	7	25	2
TOTAL QUESTIONS				**25**

There were 25 reading comprehension questions for the pretest consisted of 11 basic comprehension questions, 12 higher comprehension questions, and 2 complex comprehension questions (see appendix 2 for detailed instrument)

Table 3.6Distribution Of Test Items For Reading Comprehension Post Test

LEVEL OF READING COMPREHENSION	COMPONENTS	NUMBER		TOTAL
		NARRATIVE TEXT	REPORT TEXT	
Basic Comprehension	Main Idea	1,8	16	3
	Detail Information	9	17,22	3
	Word Meaning	2,10	18	3
	Sequence	3,11	-	2
Higher Comprehension	Inference	4,12	19,23	4
	Cause and Effect	5,13	24	3
	Drawing Conclusion	6	20	2
	Making Prediction	7,14	21	3
Complex Comprehension	Writer's purpose/intention	15	25	2
TOTAL QUESTIONS				**25**

There were 25 reading comprehension questions for the posttest, alsoconsisted of 11 basic comprehension questions, 12 higher comprehension questions, and 2 complex comprehension questions (see appendix 3 for detailed instrument)

The basic comprehension questions covered the main idea, detailed information, word meaning, and sequence of events. Higher comprehension questions, unlike literal questions, required the students to make inference, find cause and effect relationship, draw conclusion, and make prediction based on the facts they find on the text. The complex comprehension questions focused on determining writer's purpose or intention in writing the text.

Before the test wasdistributedto both treatment and control groups, the researcher had conducted try-out on class IX I to test the Validity and Reliability of the instrument. The data were then analyzed by using SPSS Product moment for validity and Cronbach's Alpha for the reliability.

3.4.2. Validity test

Validity test is used to measure the validity of a test. A test is said to be valid if the questions on the test are able to reveal something that will be

measured by the test (Ghozali, 2013). So validity wants to measure whether the questions in the test that have been made really can measure what we want to measure. The method used is item analysis, where each value in each item is correlated with the total value of all items for a variable using the product moment correlation formula. Significance test is done by comparing the value of calculated r with r table. In this study, the number of samples (n) = 32 and alpha = 0.05 in r table = 0.349, so the minimum requirement to be considered valid is the value of $r_{calculated} \geq 0.349$. To test whether each indicator is valid or not, can be seen from the Cronbach's Alpha output display in the Correlated Item-Total Correlation column compared with the results of the calculation of $r_{table} = 0.349$ (Ghozali, 2013). The validity level of the indicator or test can be determined, if $r_{calculated} > r_{table}$ = Valid, and $r_{calculated} < r_{table}$ = Invalid. The results of the validity test indicate that the calculated r value for each indicator variable pretest and posttest r count is greater than the value of r table ($r_{calculated} > r_{table}$). Thus the indicators or questionsused by each pretest and posttest variable are declared valid to be used as a variable measurement tool.The complete validity results are illustrated in appendix 4.

3.4.3. Reliability test

Reliability test is a tool to measure a questionnaire which is an indicator of a variable or construct. A test is said to be reliable if a person's answer to a statement is consistent or stable from time to time (Ghozali, 2013). Reliability measurement can be done by means of one shot or measurement only once, where the measurement is only once and then compared with other statements or measure the correlation between answers to questions. SPSS provides facilities to measure reliability with Cronbach Alpha (α) statistical tests. A construct or variable is said to be reliable if it gives a Conbach Alpha value> 0.70 (Nunnally, 1994 in (Ghozali, 2013). Table 3.7 depicts the reliability test results.

Table 3.7 Reliability Result

Variable	*Cronbach's Alpha*	Reliability standard	Reliable/Unreliable
Pretest	0,842	0,700	Reliable
Posttest	0,869	0,700	Reliable

Cronbach's alpha value of all pretest and posttest variables is greater than 0,700, so it can be concluded that the indicators or questionnaires used by pretest and posttest variables are all declared to be reliable or can be trusted as a measurement tool for variables (see appendix 5 for detailed statistical result).

3.4.4. Datacollectionprocedure

The data in this study was collected by administering pre and posttest. The students were given 25 multiple choice questions and were expected to finish it in 60 minutes. The minimum score was 0 and the maximum score was 100. Students got the total score using the following formula:

$$\text{Total Score} = \frac{\text{Number students answer correctly}}{25} \times 100\%$$

After the initial data had been collected, the researcher continued with treatment by teaching class IX E using student-selected group of collaborative strategic reading (SSG-CSR), class IX A using teacher-assigned group of collaborative strategic reading (TAG-CSR), and class IX C using individual conventional method based on the lesson plans in appendix 6and 7. The duration of each meeting was 80 minutes. Because of the limited time, the treatments were done in 4 meetings. The first two meetings, students discussed narrative texts and the last two meetings, they discussed report texts. After all the treatments had been done, the researcher administered posttest. The total items and scoring procedure of the posttest were the same as pretest. The data collected from the pretest and posttest were then tabulated before further analysis.

The data were collected on the second semester in the academic year 2019/2020. The schedule of data collection is shown on the following table :

Table 3.8The Schedule of Data Collection

NO	GROUP	CLASS	TIME	DESCRIPTION
1	SSG-CSR	IX E	4 February 2020	Pretest
2	TAG-CSR	IX A	5 February 2020	Pretest
3	Control	IX C	6 February 2020	Pretest
4	SSG-CSR	IX E	11 February 2020	Treatment
5	TAG-CSR	IX A	12 February 2020	Treatment
6	Control	IX C	13 February 2020	Conventional Method
7	SSG-CSR	IX E	13 February 2020	Treatment
8	TAG-CSR	IX A	15 February 2020	Treatment
9	Control	IX C	18 February 2020	Conventional Method
10	SSG-CSR	IX E	18 February 2020	Treatment
11	TAG-CSR	IX A	19 February 2020	Treatment
12	Control	IX C	20 February 2020	Conventional Method
13	SSG-CSR	IX E	20 February 2020	Treatment
14	TAG-CSR	IX A	22 February 2020	Treatment
15	Control	IX C	25 February 2020	Conventional Method
16	SSG-CSR	IX E	25 February 2020	Posttest
17	TAG-CSR	IX A	26 February 2020	Posttest
18	Control	IX C	27 February 2020	Posttest

3.5. Data Analysis Method

In this study, the writer employed a quantitative data analysistechnique. The quantitative data of this studywere analyzed by usingstatistical method. The technique was used to find the significant differenceon the students' reading

comprehension taught using student-selected group of collaborative strategic reading, teacher-assigned group of collaborative strategic reading and taught using individual conventional method.

3.5.1. Descriptive analysis

Descriptive analysis allows us to summarize and describe collection of data (Lomax & Vaughn, 2012). Descriptive analysis employs the result of the mean and the standarddeviation. In this part, not only the results of the pre and posttest were described but also the Normalized Gain. The Normalized Gain (N-Gain) is employed to measure the score improvement between the pre and posttest after being given certain treatment by calculating the ratio of the difference in total score to the maximalpossible increase in score using the following formula

$$\textit{Normalized} \quad \textit{Gain} \, (< g >) = \frac{\textit{Score} \, (\textit{Posttest}) - \textit{Score} \, (\textit{Pretest})}{\textit{Score} \, (\textit{ideal}) - \textit{Score} \, (\textit{Pretest})}$$

(Hake, 1999, in Nani, K, 2015). The criteria of Normalized Gain are presented in table 3.10.

Table 3.9Criteria of Normalized Gain Index

Normalized Gain Score	Interpretation
(< g >) > 0.7	High
0.3 < (< g >) ≤ 0.7	Middle
(<g>) ≤ 0.3	Lower

3.5.2. Inferential analysis

Inferential analysis enable us to collect data from a sample and then infer the properties of that sample back to the population (Lomax & Vaughn, 2012). After the data is collected, it needs to be checked for its homogeneity and normality before further analysis.

3.5.2.1. Test of normality

Test of normality aims to determine whether the distribution of responses hasa normal distribution or not. Test of normality was using

*SaphiroWilk*formula.The interpretation of the test of normality can be concluded as follows:

(a) If the value of Asymp. Sig. (2-tailed) is greater than the rate of 5% Alpha (Asymp. Sig. (2-tailed)> 0.05) it can be concluded that the data derived from populations that are normally distributed.

(b) If the value of Asymp. Sig. (2-tailed) is smaller than the Alpha level of 5% (Asymp. Sig. (2-tailed) <0.05) it can be concluded that the data derived from the population distribution is not normal.

3.5.2.2. Test of homogeneity

Test of homogeneity aims to determine whether the sample taken from the population have the same variance or do not show any significant differences from each other. Interpretation of the results of the homogeneity test is by looking at the value of Sig. (2-tailed).The interpretation can be concluded as follows:

(a) If the significance is less than 0.05 (Sig. (2-tailed) <0.05), the variants differ significantly (not homogeneous).

(b) If the significance is greater than 0.05 (Sig. (2-tailed)> 0.05), the variants are significantly similar (homogeneous)

3.5.2.3. Hypothesistesting

To test the hypothesis, paired sample T-Test was employed. The paired sample T-Test compared the pre and posttest mean score to find out the improvement in students' reading comprehension before and after treatment. Paired sample T-Test was employed using the following formula:

$$t = \frac{m}{s / \sqrt{n}}$$

where,

- m is the mean differences

- n is the sample size (i.e., size of d).
- s is the standard deviation of d

We can compute the p-value corresponding to the absolute value of the t-test statistics (|t|) for the degrees of freedom (df): $df=n-1$

The next step was comparing the posttest mean score between the experiment and control groups using Independent sample T-Test .

$$t = \frac{m_A - m_B}{\sqrt{\frac{S^2}{n_A} + \frac{S^2}{n_B}}}$$

- mA and mB : means of group A and B respectively
- nA and nB : the size of group A and B respectively

*S*2 is an estimator of the common **variance** of the two samples. It can be calculated as follows :

$$S^2 = \frac{\sum (x - m_A)^2 + \sum (x - m_B)^2}{n_A + n_B - 2}$$

Once t-test statistic value is determined, the researcher needs to read in t-test table the critical value of Student's t distribution corresponding to the significance level alphaof choice (5%). The degrees of freedom (df) used in this test are :

$$Df = nA + nB - 2$$

If the absolute value of the **t-test statistics** (|t|) is greater than the critical value, then the difference is significant. Otherwise it isn't. In addition, to find out the effectiveness of the treatment, Normalized Gain (N-Gain) score of the experiments and control groups were compared using T-Test.

To test the third hypothesis about the difference between student selected and teacher-assigned group of collaborative strategic reading in promoting students' reading comprehension, independent sample T-test was also employed. The T test compared posttest mean scores of student-selected and teacher-assigned group of collaborative strategic reading.

The conclusions were drawn by considering the following assumptions:

1. For question 1 and 2, If p-value is < 0.05, the alternative hypothesis (H_1) isaccepted and the Null Hypothesis (H_0) is rejected.It means that there is difference in the score of students' reading comprehension taughtwithout using student-selected or teacher assigned group of collaborative strategic reading and taught using student-selected or teacher assigned group of collaborative strategic reading. Thedifference is significant. On the contrary, If p-value is > 0.05, the alternative hypothesis (H_1) isrejected and the Null Hypothesis (H_0) is accepted. It means that there is no significant difference in score of students' reading comprehension taughtwithout using student-selected or teacher assigned group of collaborative strategic reading and taught using student-selected or teacher assigned group of collaborative strategic reading.
2. For question number 3, if p-value is< 0.05, the alternative hypothesis (H_1) isaccepted and the Null Hypothesis (H_0) is rejected. It means that there is significant difference in the score of students' reading comprehension taughtusing student-selected and teacher assigned group of collaborative strategic reading. On the other hand, If p-value is > 0.05, the alternative hypothesis (H_1) isrejected and the Null Hypothesis (H_0) is accepted. It means that there is not significant difference in the score of students' reading comprehension taughtusing student-selected and teacher assigned group of collaborative strategic reading