

CHAPTER III

METHODOLOGY

3.1 Research Design

The design of this study was experimental design because the aim of this study was to investigate the effect of consciousness raising strategy in English language learners' grammar achievement. According to Ary (2010), experimental research is the investigation of the researcher to control independent variable and observe the manipulation of dependent variable. Experimental research can be divided into 3 designs such as Pre-Experimental design, True Experiment design and Quasi Experimental Design (Ary, 2010).

In this study, the researcher used Quasi-experimental research specifically non-randomized control group design because the researcher cannot control over the scheduling of experimental conditions. It's not the researcher's own institution or school, so the researcher cannot randomize the subject. Ary (2010) stated that the researcher can use quasi experimental research because of the institution or parents would not want to the researcher assign which one the classroom that will be studied.

There were 2 variables in this study such as: Consciousness raising strategy as independent variable and English Language learners' grammar achievement as dependent variable. In this study, the researcher divided the participants into 2 groups. Those were experimental group and control group. For experimental group, the researcher gave pre test, treatment and post test.

The researcher gave treatment by implementing consciousness raising strategy in teaching grammar for 4 meetings. Then, in control group, the researcher only gave pre-test and post-test without applying consciousness raising strategy but the researcher applied teacher's strategy that was Presentation-Practice-Production. Teacher chose Presentation-Practice-Production as the strategy in control group because teacher wanted learners can study grammar from understanding the concept of tenses through teacher's explanation and practice through exercising and produce sentences in written and oral form correctly.

The design of this study is shown in Table 3.1.

Group	Pre-Test	Treatment	Post-Test
Experimental Group	X ₁	Y ₁	Z ₁
Control Group	X ₂	Y ₂	Z ₂

Table 3.1 Research Design in Experimental and Control Group

Note:

X₁ : Pre-Test for Experimental Group

X₂ : Pre-Test for Control Group

Y₁ : Consciousness Raising Strategy

Y₂ : Presentation-Practice-Production (teacher's strategy)

Z₁ : Post-Test for Experimental Group

Z₂ : Post-Test for Control Group

3.2 Population and Sample

3.2.1 Population

The population of this study was all students at 10th grade of SMA NU 1 Gresik in academic year 2015/2016 which totally consisted of 362 students. The researcher chose SMA NU 1 Gresik because English teacher of this school never applied consciousness raising strategy in teacher grammar. It was known from the researcher's interview with English teacher of SMA NU 1 Gresik before conducting this study.

The total of learners at 10th grade of SMA NU 1 Gresik was 362 and they were divided into some classes. Those were 8 science classes, 1 social class and 1 language class. For every class consisted of 36 until 37 students. It was chosen as population because they still had sufficient score in grammar achievement than other grades. According to Ary, D (2010) population is a big group which the process of interpretation sample become population is happened or all members of the group in the class in the form of people, things or incident.

3.2.2 Sample

Because of the large population, the researcher must choose sample of this study. Ary, D (2010) argued that sample is a part of population or the little group which are studied together. In this test, the sample of the study was chosen from Purposive Sampling. It was used as a method to get the sample of the population because the researcher chose the sample based on the researcher's consideration or certain purpose. Those were the sample has sufficient grammar knowledge and has same ability in English grammar

achievement. Through purposive sampling, the researcher can find people who can provide information based on the researcher's needs (Bernard, H.R 2002).

There were some steps in choosing sample using purposive sampling such as: First, the researcher must consider the population of the study. The population was all students at 10th grade of SMA NU 1 Gresik. Second, the researcher met English teacher who taught English in 10th grade. In that time, the researcher asked information about learners' ability in grammar especially for 10th grade which classes who had same ability and motivation in learning grammar. These were data of learners' average score at mid-term semester:

NO	CLASS	AVERAGE SCORE
1	X MIA 1	76,74
2	X MIA 2	82, 80
3	X MIA 3	76, 83
4	X MIA 4	71, 56
5	X MIA 5	83, 40
6	X MIA 6	70, 69
7	X MIA 7	70, 53
8	X MIA 8	76, 63

Table 3.2 Learner's Grammar Score at Mid-Term Semester

Based on data above, the researcher chose 10 Science 1 and 10 Science 3 as the sample of this study because they had same ability and include as average level. Then, the researcher also chose 10 Science 8 as try out class. Finally, the researcher decided to choose 10 Science 1 as control group which consisted of 36 learners, 10 Science 3 as experimental group which consisted of 37 learners and 10 Science 8 as try out class which consisted of 36 learners.

3.3 Data Collection

Data collection was the process of gathering and measuring information. In this stage, the researcher explains the instruments and procedures of collecting data:

3.3.1 Research Instruments

The researcher used grammar test which related to simple past tense and present perfect tense as the instrument of this study. This test was used for measuring students' grammar achievement and the effect of consciousness raising strategy towards learners' grammar achievement.

3.3.1.1 Test

In this study, the researcher gave pre-test and post-test to control group and experimental group for knowing the significance effect of consciousness raising strategy towards learners' grammar achievement. These tests were arranged by the researcher herself through searching the references from English guidance book and internet sources.

Pre-test and post-test were arranged based on English syllabus of 10th grade at SMA NU 1 Gresik. In that syllabus, it explained that the grammar materials for 10th grade learners especially in the 2nd semester were simple past tense and present perfect tense. For brief syllabus, it was added in Appendix 2.

The items of pre-test and post test consisted of 25 items of multiple choices for each test. For clear explanation, it will be explained below:

1) Pre-test

The aim of pre-test was to know learners' ability in grammar achievement before the researcher using consciousness raising strategy and checking the homogeneity of experimental and control group. The test totally consisted of 25 questions of multiple choices which divided into 14 multiple choices of simple past tense and present 11 multiple choices perfect tense.

2) Post-test

This test was conducted after the researcher giving treatment for experimental group. The aim of post-test was to know learners' ability in grammar achievement which has been taught using consciousness raising strategy. This test was same with the pre-test which totally consisted of 25 questions of multiple choices. It was divided into 14 multiple choices of simple past tense and 11 multiple choices perfect tense.

For all the test items of pre-test and post-test, it was added in Appendix 3 and 4.

For detail grammar test items, it is explained in this table form:

Focus Items	Questions Number	
	Pre-Test	Post-Test
Simple Past Tense	1,2,4,8,10,12,13,15,16 ,18,19,20,22,25	1,2,3,4,7,9,12,14,15,17, 18,19,20,21
Present Perfect Tense	3,5,6,7,9,11,14,17,21, 23,24	5,6,8,10,11,13,16,22,23 ,24,25

Table 3.3 Questions Distribution

3.3.1.2 Scoring Guide

For scoring learners' grammar achievement in pre-test and post-test, the researcher made this formula and criterion:

$$\text{SCORE} = \text{Number of True Answer} \times 4$$

SCORE	CATEGORY
85-100	Excellent
70-84	Good
55-69	Enough
40-54	Poor
0-39	Very Poor

Table 3.4 Students' Grammar Achievement Criteria

3.3.1.3 Validity of Grammar Test

Before conducting pre test and post test, the researcher must measure the validity of the test. There are 4 types of validity such as face validity, content validity, criterion validity and construct validity. In this study, the researcher used content validity and construct validity for measuring the validity of the test.

Ary (2010) explained that content validity is not in numeric form but it determines the test items are appropriate with curriculum, syllabus and course book. For testing content validity, the researcher looked out English syllabus of the 10th grade SMA NU 1 Gresik especially in the 2nd semester. If the test items appropriate with curriculum syllabus and course book, it can be said that the test has content validity. These are the analysis of test validity:

Basic Competence	Grammar Material	Questions	
		Pre-Test	Post Test
3.9 Menganalisis fungsi sosial, struktur teks, dan unsur kebahasaan pada teks recount sederhana tentang pengalaman/kejadian/peristiwa, sesuai dengan konteks penggunaannya.	Simple Past Tense	1,2,4,8,10, 12,13,15,16, 18,19,20,22, 25	1,2,3,4,7 9,12,14,15, 17,18,19,20, 21
3.6 Menganalisis fungsi sosial, struktur teks, dan unsur kebahasaan pada pernyataan dan pertanyaan tindakan/kejadian yang dilakukan/terjadi di waktu lampau yang merujuk waktu terjadinya dengan yang merujuk pada kesudahannya, sesuai dengan konteks penggunaannya.	Present Perfect Tense	3,5,6,7,9 11,14,17 21,23,24	5,6,8,10,11 13,16,22, 23,24,25

Table 3.5 Analysis of Content Validity

For brief explanation of Content validity analysis, it was added in Appendix 7.

Not only content validity, but also the researcher used construct validity for checking validity of test items by giving try out to the different class of sample before the researcher giving pre-test and post test to the sample for analyzing items of the test which one is valid and not valid. Then, the researcher checked them using SPSS Statistics 17.0 for descriptive statistic and use Pearson Product Moment as correlation coefficient. The researcher used Pearson Product Moment because the results of data are more accurate. This is the formula for testing validity of the test using Pearson Product Moment:

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

Where

r_{xy} : the coefficient of correlation between X and Y variable or validity of each item

N : the number of students/ subject participating in the test

X : the sum of X score

Y : the sum of Y score

$\sum X$: the sum of total score of each student

$\sum Y$: the sum of score in each item

$\sum XY$: the sum of multiple score from each students with the total score each item

$\sum X^2$: the sum of the square score in each item and

$\sum Y^2$: the sum of square total score from each student

After finding the value of r_{xy} , we can determine the validity of the test by looking at Guilford (1956) criteria:

0,80 - 1,00	: Very High Validity
0,60 – 0,79	: High Validity
0,40 – 0,59	: Intermediate Validity
0,20 – 0,39	: Low Validity
0,00 – 0,19	: Very Low Validity
<0,00	: Invalid

By SPSS Statistics 17.0, the steps for determining validity of the test are:

1. Open SPSS 17.0 program
2. Choose File, New Data.
3. Input the data in the data view
4. For counting the test validity, Click Analyze menu, correlate, bivariate
5. Input all variables in the variables part, give checklist in Pearson and choose two tailed in Test of significance, click OK.
6. The result of validity will appear in the output.

For knowing the test is valid or not, we must compare it with r-table of Product Moment. In this study, total of students in each classes are 36 students. So, r-table of Pearson Product Moment or validity of items which totally consisted of 36 learners is 0, 329. If validity of each items is higher

than 0,329, the test item is valid, but if validity of each items is less than 0,329, the test item isn't valid. For brief table of Pearson Product Moment coefficient (r-table), it was added in Appendix 6.

For checking validity of test items, the researcher conducted try out once in other classes beside experimental and control group who had same ability with those groups. The researcher only conducted try out for once because of the limited time which was given by the institution.

The researcher distributed 30 items for pre-test and 30 items for post-test. After calculating the results of the try out using SPSS 17.00, the researcher found that there were 25 valid items and 5 invalid items in pre-test. Then, for the post-test there were 26 valid items and 4 invalid items. Because of the items for pre-test and post-test should be same, the researcher deleted 1 item in post-test. So, both of pre-test and post-test consist of 25 items.

These are the result of construct validity for pre-test and post-test:

ITEM	TOTAL SCORE	ITEM	TOTAL SCORE
1	0,446	16	0,703
2	0,460	17	0,551
3	0,630	18	0,412
4	0,424	19	0,171
5	0,556	20	0,351
6	0,577	21	0,497
7	0,476	22	0,218
8	0,460	23	0,566
9	0,515	24	0,475
10	0,750	25	0,436

11	0,538	26	0,235
12	0,576	27	0,439
13	0,579	28	0,654
14	-0,012	29	0,541
15	0,284	30	0,417

Table 3.6 Pre-test Construct Validity (Phase 1)

ITEM	TOTAL SCORE	ITEM	TOTAL SCORE
1	0,448	16	0,383
2	0,420	17	0,364
3	0,675	18	0,548
4	0,485	19	0,606
5	0,503	20	0,442
6	0,642	21	0,485
7	0,487	22	0,366
8	0,420	23	0,688
9	0,566	24	0,597
10	0,792	25	0,388
11	0,522		
12	0,536		
13	0,566		
14	0,731		
15	0,610		

Table 3.7 Pre-test Construct Validity (Phase 2)

ITEM	TOTAL SCORE	ITEM	TOTAL SCORE
1	0,416	16	0,447
2	0,270	17	0,654
3	0,646	18	0,402
4	0,637	19	-0,134
5	0,455	20	0,766

6	0,383	21	0,605
7	0,867	22	0,716
8	0,623	23	0,543
9	0,256	24	0,434
10	0,436	25	0,428
11	0,549	26	0,583
12	0,614	27	0,646
13	0,654	28	0,637
14	-0,028	29	0,716
15	0,543	30	0,455

Table 3.8 Post-test Construct Validity (Phase 1)

ITEM	TOTAL SCORE	ITEM	TOTAL SCORE
1	0,417	16	0,618
2	0,689	17	0,727
3	0,682	18	0,517
4	0,444	19	0,396
5	0,357	20	0,409
6	0,890	21	0,602
7	0,652	22	0,689
8	0,461	23	0,682
9	0,573	24	0,727
10	0,629	25	0,444
11	0,674		
12	0,517		
13	0,413		
14	0,674		
15	0,792		

Table 3.9 Post-test Construct Validity (Phase 2)

From those tables above, there are 4 kinds of tables. Pre-test and post-test table consists of phase 1 and phase 2. In phase 1, the researcher calculated validity of 30 items and phase 2 was the 2nd calculation results of the researcher who measured again 25 valid items because the researcher wanted to make sure that all items were valid. So, the researcher can stop the try out and did not need the 2nd try out because all items were valid. For brief result of pre-test and post-test validity in SPSS 17.00 version, it is shown in Appendix 8.

3.3.1.4 Reliability of Grammar Test

In this study, the researcher used Cronbach's Alpha for measuring reliability of the test. The formula of Cronbach's Alpha is:

$$r = \left(\frac{k}{k-1} \right) \left(1 - \frac{\sum Si^2}{St^2} \right)$$

Where

r : Cronbach's Alpha coefficient

k : total of test items

$\sum Si^2$: total of test variance

St^2 : total of variance

After knowing cronbach's alpha coefficient, we must consider in this Guilford (1956) criteria:

< 0,20 : Very Low Reliability

0,20 – 0,39	: Low Reliability
0,40 – 0,59	: Intermediate Reliability
0,60 – 0,79	: High Reliability
0,80 – 1,00	: Very High Reliability

In SPSS 17.0, there are some procedures in measuring reliability of the test such as:

1. Open SPSS 17.0 program
2. Choose File, New Data.
3. Input the data in the data view.
4. Click analyze, click scale and click reliability analyze
5. It will appear dialogue box named reliability analysis. Input all variables in items box then choose alpha in the model
6. Click OK

If Cronbach's Alpha value $>$ r-table, the test items are reliable but if Cronbach's Alpha value $<$ r-table, the test items are not reliable.

Based on the result of try out for pre-test and post-test, the researcher found that both of pre-test and post-test were reliable. It was shown from the result of test items' reliability in SPSS 17.00. The reliability of 25 valid items in pre-test was very high reliability because Cronbach's Alfa value was higher than r-table that was 0,892. Then, reliability of 25 valid items in post-test was very high reliability because Cronbach's Alfa value was higher than r-table that was 0,919.

These are the table of reliability for pre-test and post-test:

Reliability Statistics	
Cronbach's Alpha	N of Items
.892	25

Table 3.10 Pre-test Reliability

Reliability Statistics	
Cronbach's Alpha	N of Items
.919	25

Table 3.11 Post-test Reliability

In reliability analysis, the researcher only showed 2 kinds of tables. Different with validity, in reliability the researcher only checked the items which have been valid. So, there is no 2nd phase in this reliability analysis. For the result of pre-test and post-test reliability in SPSS 17.00 version, it was shown in Appendix 9.

3.3.2 Procedures of Collecting Data

In conducting this study, the researcher applied some steps such as: First, the researcher chose the subject and divided into 2 groups, experimental group and control group. Second, the researcher gave pre-test to students in 10 Science 1 as control group and 10 Science 3 class as experimental group for knowing their ability in grammar and their homogeneity.

Third, the researcher gave 4 times treatment for 10 Science 3 class as the experimental group using consciousness raising strategy and taught the control group using PPP (Presentation, Practice, Production) strategy 4

times too. Fourth, the researcher gave post-test to 10 Science 1 and 10 Science 3 students of SMA NU 1 Gresik for knowing the significance effect of consciousness raising strategy on English language learners' grammar achievement.

Finally, the researcher calculated the significance effect of consciousness raising strategy by t-test using SPSS Statistics 17.0 and made conclusion whether there is significance effect of the consciousness raising strategy on English language learners' grammar achievement.

3.3.2.1 Schedule

In implementing consciousness raising strategy and presentation-practice-production, the researcher made this schedule:

NO	DATE	ACTIVITY	GROUP	TOPIC
1	May 4 th , 2016	Pre-Test	Experimental Group	Simple Past Tense and Present Perfect Tense
2	May 7 th , 2016	Treatment 1	Experimental Group	Simple Past Tense
3	May 7 th , 2016	Pre-Test	Control Group	Simple Past Tense and Present Perfect Tense
4	May 9 th , 2016	Meeting 1	Control Group	Simple Past Tense
5	May 10 th , 2016	Treatment 2	Experimental Group	Simple Past Tense
6	May 11 th , 2016	Treatment 3	Experimental Group	Present Perfect Tense
7	May 12 th , 2016	Meeting 2	Control Group	Simple Past Tense
8	May 14 th , 2016	Treatment 4	Experimental Group	Present Perfect Tense
9	May 14 th ,	Meeting 3	Control	Present Perfect

	2016		Group	Tense
10	May 16 th , 2016	Meeting 4	Control Group	Present Perfect Tense
11	May 17 th , 2016	Post Test	Experimental Group	Simple Past Tense and Present Perfect Tense
12	May 19 th , 2016	Post Test	Control Group	Simple Past Tense and Present Perfect Tense

Table 3.12 Schedule of Experimental Group

From the table above, the researcher used different term for activities in experimental group and control group. For experimental group, the researcher used “treatment” as the term because in experimental group the researcher gave treatment by applying consciousness strategy. Moreover, the researcher used “meeting” as the term in control group for teaching grammar because the researcher did not give treatment to that group.

3.4 Data Analysis

The aim of data analysis was to answer the research problem through pre-test and pos-test. In this study, the researcher analyzed the data by using Independent sample t-test in SPSS 17.0. It decided whether there is significant difference between experimental group and control group after treatment.

In independent t-test, there were some assumptions such as:

1. Independence. It means that observation for each sample must be independent
2. Normal distribution. It means that the score of each population must be normally distributed

3. Homogeneity of Variance. It means that both groups must be equal in variance.

In this study, the researcher only used independence and homogeneity of variance because the researcher does not need normal distribution because the data of this study included as data ratio. It can be seen from the score of learners' grammar achievement was absolute zero. When data included as data ratio, it called as parametric test. In parametric test, the subjects have been already homogeneous. Ary (2010) stated that if subjects have been already homogeneous, they certainly normal distribution. So, it makes the researcher only uses independence and homogeneity of variance.

3.4.1 Homogeneity Test of Variance

For homogeneity test, the researcher used Levene's test of homogeneity in SPSS 17.0 version. The test of Levene's test, or P, defined as follow:

$$P = \frac{(N - k) \sum_{i=1}^k N_i (Z_i - Z_{..})^2}{(k - 1) \sum_{i=1}^k \sum_{j=1}^{N_i} (Z_{ij} - Z_i)^2}$$

The symbols defined as follow:

P : the result of the test

K : the number of different groups which the sample belong

N : the total number of sample

N_i : the number of sample in the i^{th} group

Y_{ij} : the value of the j^{th} sample from i^{th} group

Z_{ij} : $\left\{ \begin{array}{l} |Y_{ij} - \bar{Y}_i| \bar{Y}_i \text{ is a mean of } i^{\text{th}} \text{ group} \\ |Y_{ij} - \bar{Y}_i| \bar{Y}_i \text{ is median of } i^{\text{th}} \text{ group} \end{array} \right\}$

The significance of P is tested a gained F ($\alpha, k - 1, N - k$) where F is a quintile of the test distribution, with $k - 1$ and $N - k$ its degrees of freedom, and α is the chosen level of significance (0.05).

To analyze the homogeneity, the researcher used SPSS 17.0. The homogeneity was checked in SPSS by Levene's test with these following procedures:

1. Input all data (pre-test) score of both experimental and control group in data view.
2. Click analyze menu, choose compare means and choose independent sample t-test. In independent sample t-test menu, input the score variable into test variable column and the group variable into grouping variables
3. Define group by putting code 1 for experimental group in group 1 and code 2 for control group in group 2.
4. Click options for choosing procedures in testing independent variable t-test.
5. Click continue and click OK.

3.4.2 Hypothesis Testing

Independent t-test was used to find out the significant difference of using consciousness raising strategy on learners' grammar achievement between experimental and control group. The steps of t-test calculation are:

1. Test the hypothesis of the research and the setting α (alpha) level at 0.05 (two tailed test). The hypothesis in this research could be formulated as follow:

H_0 : There is no significant difference of using Consciousness raising strategy on learners' grammar achievement between experimental and control group.

H_1 : There is significant difference of using Consciousness raising strategy on learners' grammar achievement between experimental and control group.

2. Find t-value using Independent - Sample T-Test and compare the probability with the level of significance for testing the hypothesis. After the scores compute in SPSS 17.00 version, then see the output of Independent- Sample T-Test and interpret the output that if sig. (2-tailed) $> \alpha$ (0.05), the researcher should accept the H_0 , but if sig. (2-tailed) $< \alpha$ (0.05), the researcher can rejected the H_0 , it means H_1 is accepted.

T-test was calculated to find out the comparison of two means between experimental group and control group in pre-test and post-test. In analyzing the data, the researcher used independent t-test formula. The formula in calculating t-test was:

$$t = \frac{(x_1 - x_2) - (\mu_1 - \mu_2)}{S_{x_1 - x_2}}$$

Where:

T : t value

$\bar{x}_1$: average group 1

$\bar{x}_2$: average group 2

S : standard error of two groups

$\mu_1 - \mu_2$ is always defaults to 0

Where:

$$S_{\bar{x}_1 - \bar{x}_2} = \sqrt{\frac{S^2_{\text{pooled}}}{n_1} + \frac{S^2_{\text{pooled}}}{n_2}}$$

$S_{\bar{x}_1 - \bar{x}_2}$: standard error of two groups

S^2_{pooled} : variants of the two groups

n_1 : number of sample group 1

n_2 : number of sample group 2

Pooled variance: the average of two sample variance, allowing the large sample to weight more heavily.

Formula:

$$S^2_{\text{pooled}} = \frac{(df_1)S_1^2 + (df_2)S_2^2}{df_1 + df_2}$$

$$\text{or } S^2_{\text{pooled}} = \frac{SS_1^2 + SS_2^2}{df_1 + df_2}$$

$df_1 = df$ for 1st sample; $n_1 + 1$

$df_2 = df$ for 2nd sample; $n_2 + 1$

Standard Error of the differences:

$$S_{\bar{X}_1 - \bar{X}_2} = \sqrt{\left(\frac{SS_1 + SS_2}{n_1 + n_2 - 2}\right)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}$$

In calculating t-test, the researcher used SPSS 17.00 version. The steps in analyzing the data of post test for both experimental and control group were:

1. Input the data of post-test in SPSS program between experimental and control group.
2. Click Analyze, choose Compare Mean, and choose Independent Sample T-Test. In Independent Sample T- Test, input the score variable into Test Variable column, and group variable Grouping Variable column.
3. Click Define Group, Choose group 1 (for experimental) and group 2 (for control), then click OK.