CHAPTER III

METHODOLOGY

This chapter describes the methodology of collecting data that is used to complete this study. By using a suitable method, it will get a valid data to have a good result. This chapter consists of research design, population and sample, data collection, and data analysis.

3.1 Research Design

The purpose of this study is to investigate the effectiveness the use of KWL chart strategy through students' question in reading comprehension at the second grade in SMPN 2 Kebomas Gresik. This study is to test the theory, so that is why this research uses quasi-experimental design. It happened to uses quasi-experimental research design because the researcher may not possible to arrange and random the students in the class. Based on Best (1981:72), quasi-experimental design happens because the random process of experimental and control group cannot be applied. The school have been devided the students into some classes, VIII-A class until VIII-H class, so it is impossible for the researcher to rearrange the class.

The researcher appear to bring out three variables in the this study, those are: KWL charts, students' question, and reading comprehension. The resaercher prefer the discussion of KWL charts become an indipendent variables, then students' question and reading comprehension become dependent variable. According to (Miller, 1984: 4) experiment is a research collecting of data to know the effect of variable and the other variable.

There will be two big groups in this study. First is experimental group and the second is control group. The experimental group use KWL chart strategy as the treatment and the control group use three steps interview techniques. In this case, the researcher uses the same grade for both groups to make this research relate and reliable. The researcher choose class

VIII-H as the experimental group and class VIII-G as the control group because those classes are in the the same level and also homogenous. For this study, the researcher use pre-test and post-test both of the two groups. Pre-test conducted before treatment, while post-test was held after the applying treatment. The design chart can be seen in figure below:

Group	Pre-Test	Treatment	Post-Test
Experimental	+	+	+
Control	+	-	+

Table 1. Pre-test, Post-test Quasi Experiment Design

Notes: + : with treatment of KWL chart strategy

- : without treatment of KWL chart strategy

3.2 Population and Sample

3.2.1 Population

Population is the area in when you are trying to get information. According to Burns (1990:62) Population is the all group of students or objects or events that all have one characteristics one scope and must be defined specially and not ambiguously. The population of this study consists of the first semester 8th grade students of SMPN 2 Kebomas Gresik in academic year 2016/2017 which consisted of 288 students with 9 classes.

The researcher choose SMPN 2 Kebomas Gresik because this school never used KWL chart strategy before. That was known by the researcher interview with English teacher in SMPN 2 Kebomas Gresik.

3.2.2 Sample

The researcher use experimental research design because the school did not allow to do randomization procedure. Sample is the part of population that you are really want to survey. McMillan and Schumacher (1984:32) said that sample is a group of subjects had chosen from the population. Because the population was large, so the researcher uses cluster sampling technique to take the sample.

The population of this study consists of the first semester 8th grade students of SMPN 2 Kebomas Gresik in academic year 2016/2017 which consisted of 288 students with 9 classes. For the sample of the study, the experimental group is VIII-H which consisted of 32 students, 16 female and 16 male. While the control group was class VII-G with 33 students, 16 female and 17 male students. So the total number of students as sample was 65 students. The sample have similar characteristic from their ability in the English class activity, so the sample is homogeneus.

3.3 Data Collection

The researcher collect the data by using reading test including pre-test (to know the reading ability before treatment, post test (to know the influence of KWL technique toward reading skill), and also post-test both of the two groups by using independent sample T-test in SPSS 15.0 program to know the influence of KWL technique toward reading skill.

3.3.1 Instuments

The instrument of this study which use quasi experimental research design is reading test including pre test and post test. The test is used to measure students' reading skill and get the information about the effect of KWL chart through

students' question in reading comprehension. According to Suharsimi Arikunto (2002:53) test is a tool or procedure that conduct to measure or know thing by using a method or rules had been given. Pre test is for the first data from the student background knowledge and for checking the validity of the test item. The post test is for getting information about the significance ability which is rising or not using pre-questioning on the reading comprehension.

The researcher collect the data using test because it is very useful to know the students achievement. The instruments that use in this research are pre and post test.

3.3.1.1 Pre-test

Pre-test is done by experimental and control group. It is conducted to find out the initial different between both of the two groups as they have similar level in reading ability. Before applying KWL chart as the treatment of this research, the researcher arrange pre-test to the subject to know the previous ability in term of questioning in reading comprehension. This test contains of a descriptive text and there will be twenty multiple choice questions that can answer by reading the text. Those questions are taken from the text explicitly and implicitly.

3.3.1.2 Post-Test

Post test is also done by both of the two groups. The procedure of post test is same with pre test, but using different title of descriptuve text as the material. The test was conducted after giving all treatment to measure that the treatment is success or not.

3.3.1.3 Validity

Before conducting pre test and post test as instrument of this research, the researcher will test the validity of the test item. Validity is a compatibility test with the main targets that need to be measured. There are three kinds of validity, those are content, criterion and construct validity. Content validity is compraring test item with the curriculum and also the syllabus. Then, criterion validity it correlates test result with another criterion of interest. For construct validity is used for objective matter as like multiple choice items. Here the researcher use content validity to check the test. It use because this test conducted in reading skill with the objective essay test that need to compare to the curriculum and also the syllabus. The researcher check the instrument validity based on English curriculum and syllabus. Based on Djiwandono (2011:165) content validity can be done by arranging the outline of the task requirement in taking the test which compare with the items in the test or the content in the curriculum.

3.3.2 The procedure of Collecting Data

To collect the data needs some procedures which must be completed in collecting the data. The first is preparing instruments, the researcher identify the topic from curriculum, syllabus, and course book to make items for test. The second is giving pre-test both of the class before implementing KWL chart strategy and getting the score of the test. The third is giving treatment to experimental class by implementing KWL chart strategy. The forth is giving post-test both experimental and control group. The last, if all the data have ready done, the researcher calculate the all data by using statistical calculation to know the effectiveness of KWL chart through students' question in reading comprehension.

In addition, the researcher took the data in the form of the reading test on the control group by giving the same procedure. But for control group the researcher

used three steps interview techinque as the strategy implemented in reading activity.

3.4 Data Analysis

3.4.1   Analysis the Data of Test

The purpose of analyzing data is to answer the research problem from pre-test and post-test. The researcher analyzed the data by using independent sample T-test in SPSS 15.0 to test whether it is effective or not using KWL technique through students question in reading comprehension in the second grade of SMPN 2 Kebomas Gresik that consist of 32 students. Independent sample T-test is appropriate because the sample was small and the scopes were independent. It was carried out to decide whether there was significant different between experimental group and control group after one month treatment.

Assumption for the independent t-test: a) Independence: Observations within each sample must be independent (they do not influence each other), b) amount of subject in every group are same or neared and, c) Normal distribution: The score in each population must be normally distributed and, d) Homogeneity of Variance: Two populations must have equal variances (the degree to which the distributions are spread out is approximately equal).

3.4.1.1 Normality Distribution Test

Normality distribution test is aimed to find whether or not the distributions of pre-test score in two groups are normally distributed. In this case, the result of the normality distribution is also used to find out whether or not the hypothesis that had been determined is accepted. To analyze the normal distribution, this study use Komogorov Smirnov Sample Test in SPSS version 15.0. It is aimed to.

The first step in calculating the normality distribution test state that the hypothesis: H0: the score of the experimental and control group are normally distributed. The second step is calculating the normality distribution test tried to compare the Asymp.Sign.(probability) with the level of significance for testing the hypothesis. If the Asymp is more than the level significance (0.05) the null hyphotesis is accepted; the score normally distributed. On the other hand if the Asymp is less than the level of significance (0.05) the null hyphotesis is rejected. The procedure analyze is press menu, choose nonparametric test after that yu choose 1= sample K-S click exact, choose monte carlo 99% and click OK.

3.4.1.2 Homogeinity Test of Variance

The researcher uses one Lavens' test of homogeneity test in SPSS version 16.0 for homogeneity test. This test is used to find out whether the variance of pre test and post test of experimental group and control group are homogenous. The test statistic of Lavens' test'(W) is defined as follows:

$$W = \frac{(N - k)}{(k - 1)} \frac{\sum_{i}^{k} = 1 \, Ni(Zi - Z)^2}{\sum_{i}^{k} = 1 \sum_{j}^{Ni} = 1 \, (Zij - Zi)^2}$$

Where:

W   : The result of the test

K   : The number of different groups to which the sampled cases belong

N   : The total number of cases in all groups

Ni   : The number of cases in the i group

Y_{ij} : The value of the measured variable for the jth case from i^{th} group

$$Z_{ij} = \begin{cases} |Y_{ij} - \acute{Y}_i|, & \acute{Y}_i \ is \ a \ mean \ of \ i-th \ group \\ |Y_{ij} - \acute{Y}_i|, & \acute{Y}_i \ is \ a \ median \ of \ i-th \ group \end{cases}$$

The significance of W is tested against F (α, K- 1, N-K) where F is a quantile of F test distribution, with K – 1 and N – K its degrees of freedom, and α is the chosen level of significance (usually 0.05 or 0.01)

Zawawi (2012: 28) stated that the procedure in analysing the homogeneity by using SPSS version 15.0 are follow: first, makes two columns. The first column is a group and the second column is a score after pre test data of both experimental and control group are input, then click Analyze then Compae Means then Independent Sample T-Test, input the score into Test Variable and the grouping variable, then click define groups to determine group 1 (for experimental) and group 2 (for control) click continue and the last click OK.

3.4.1.3 Hypothesis Testing

The first step was stating the hypothesis and setting the alpha level at 0.05 (two tailed test). In this research, the hypothesis used null hypothesis that said "there is significant difference on the use KWL chart strategy through students' question in reading comprehension between experimental and control group". The hypothesis can be formulated as follow:

Null hypothesis is $\mu_1 - \mu_2 = 0$ ($\mu_1 = \mu_2$)

Alternative hypothesis is $\mu_1 - \mu_2 \neq 0$ ($\mu_1 \neq u_2$)

H_1 : the achievement of students' question in reading comprehension through KWL charts strategy

H_2 : the achievement of students' question in reading comprehension through without KWL charts strategy

Hypothesis testing in this research was:

H_0: there is no significant difference on appying KWL charts strategy on students'
question in reading comprehension between experiment and control groups

H_1: there is significant difference on appying KWL charts strategy on students'
question in reading comprehension between experiment and control groups T

The second step was finding t-value using independent t-test formua and
comparing the probability with the level of significance for testing the hypothesis.
Determining t-critical in table t=(0.05) df, the researcher compared t-observed and t-
critical. If t-obs<t-critical, the researcher should accept the null hypothesis and if t-
obs>t-critical, it means the researcher can accept the alternative hypothesis.

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

$$t = \frac{(x_1 - x_2) - (\mu_1 - \mu_2)}{Sx_1 - x_2}$$

Where:

t   : is t value

x_1 : is average group 1

x_2 : is average group 2

S   : is standart error of two groups

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

Where:

$$Sx_1 - x_2 = \sqrt{\frac{S^2 pooled}{n_1} + \frac{S^2 pooled}{n_2}}$$

Sx$_1$-x$_2$　　　: is standart error of two groups

S2pooled　: is variants of two groups

n$_1$　　　　: is number of sample group 1

n$_2$　　　　: is number of sample group 2

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

Formula:

Estimated standart error of the difference

$$Sx_{1-x_2} = \sqrt{\left(\frac{SS_1 + SS_2}{n_1 + n_2 - 2}\right)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}$$

　　　　Therefore, the results of the test were subjected for the following statistical procedures. To calculate t-test, the researcher uses SPSS (Statistical product and service solution) version 15.0. The post test score experimental and control group were analyzed by using SPSS version 15.0 with the following procedures. The first procedure was inserting the post test data both experimental and control group using the data view. The second procedures were going to the analyze menu, selecting compare means, then choosing independent sample T-test output, automatically it could answer to the research question about the comparison between two groups. The final result was collected by means of pre test and post test score. It is aimed to find out the significance on the effect of KWL chart strategy through students' reading comprehension.