CHAPTER III

RESEARCH METHODOLOGY

3.1 Research Design

The research design of this study uses pre experimental design in the form of one group pre-test and post-test design because this study does not provide control as extraneous variable, it means that the study will be done in one group only without other control group with the purpose is to examine the cause and the effect after the treatment. The subject of this study is the first grade of SMALB-B Kemala Bhayangkari 2 Gresik which consists of one class. In this study, there are two variables those are independent variable is the use of interactive writing instruction and the dependent variable is writing skill. As identified by Norman., E. Wallen (2009) single subject design the data are collected and analyzed for only one subject at the time. Further, a single group is measured or observed not only after being exposed to a treatment but also before.

To facilitate the purpose in obtaining data, the researcher considers one group pre-test and post-test design as the best design because some advantages in using the design. As highlighted by Yogesh., KS. (2006) there are five advantages of the one group pre-test and post-test design. First, the design is a simple experimental design which more useful than others. Second, the planning and activation is easy and simple. Third, equalization of group or changing is not needed. Fourth, it is applicable in the classroom. Fifth, it works as a stimulus for better teaching. The design chart can bee seen in the figure below:

Table 3.1 one group pretest-posttest design

Pretest	Independent	Posttest
Y_1	X	Y_2

Where:
X: Experimental treatment

Based on Donald Jack., R & Norma., E. (2009) there are three steps on one group pre-test and post-test design. First, the researcher held a pre-test to find out the students' writing skill on composing simple announcement text of first grade at SMALB-B Kemala Bhayangkari 2 Gresik. Second, is applying the treatment in writing skill by using interactive writing instruction. Third, administering a post-test with a purpose is to measure the students' writing ability in composing simple announcement text through interactive writing instruction.

3.2 Population and Sample

According to Paul, P., & Lee, C. (2010) a population consist of all the subjects in the study. So, from the statement above, the population of this study is all of the students of SMALB-B Kemala Bhayangkari 2 Gresik.

Meanwhile, the sample is the process of selecting a group of subjects for a study that represents the large group which were selected Paul, P., & Lee, C. (2010). So, the requirement of being the participant of this study are attending the first semester and considering in hearing impaired class. Indeed, the sample of this study consists of five students on hearing impaired class at first grade. There will be one female and four males.

3.3 Data Collection

3.3.1 Data Collection Technique

In order to get the data for the researcher, collecting data is very important. This study is taken the data from the test, there are pre-test and post-test. The first data is pre-test that is given for student in hearing impaired class at first grade of SMALB-B Kemala Bhayangkari 2 Gresik, it is to know the ability in composing simple sentence before the students get the treatments. After pre-test the researcher gives treatments for three times. Then, the researcher gives post-test to know the influence of interactive writing instruction toward student's ability in writing skill.

After that, the researcher collects the data from students pre-test and pos-test score. Then, the researcher begins to analyze the data of pre-test and post-test by using general linear model and the data of post-test by using Wilcoxon Rank test in SPSS 16.0 program.

3.3.2 Research Instrument

In this study, the researcher uses test in collecting the data. As identified by Yogesh., KS. (2006) test is a set of questions which used to measure the skill, knowledge, intelligence, and talent of individual of a group. Similar with Jack., R & Norma., E. (2009) statement that test is a device for sampling behavior of performance related the skills, competencies, attitudes, or other characteristics of people. So, for collecting the data the researcher use test because it is very useful to know the students achievement in understanding the material which given by the researcher.

There are two tests that are used by the researcher. Those are pretest and posttest. Pretest and posttest will be conducted to the hearing impaired students, it is to find out whether the hearing impaired students make progress in the writing ability or not. The researcher designed of pre-test different from post-test but the tests are still equal in the term of topic and item. The researcher designed writing test by herself from book sources of the school and the internet.

Pre-test and post-test, selection of tests adapted with the syllabus of SMALB-B at first grade with focus on writing skill which is composing a simple sentence of announcement text. The item of pre-test (see Appendix 1) and post-test (see Appendix 2) is two items. The test can be elaborated as follows:

a. **Pre-test**

   Pretest is done by the hearing impaired students, it is conducted for knowing the previous ability in writing ability on composing simple announcement text. The researcher gives 50 minutes for finishing the test.

b. **Post test**

   Posttest is also done by hearing impaired students. The procedure of the posttest has the same procedure with the pretest, but this post test was conducted after giving all treatment, it is to measure the result of the treatment, it is success or not. The items and topic of post-test are same with the item and topic given to the pretest.

3.3.3 The Validity of Test

Before conducting pre-test and post-test as instrument of this research, the researcher will test the validity of the item. Validity is a compatibility test with the main targets that need to be measured. There are three kinds of validity, those are content, construct and criterion related validity. Content validity is a kind of validity which depends on a careful analysis of the language being tested and the particular test. Construct validity depended in large part on the reliability of the test and criterion measure. While criterion related validity is to see how far the result on the test agree with the provided by some independent and highly dependable test.

In this study, content validity is used because the language domain the test intends to measure for this study especially on writing announcement text. Further, content validity is a logical process where connection between the test items the related tasks are established (C.R. Kotari, 2004). This kind of validity depends on careful analysis of the language being tested. The tests are constructed as to contain representative sample which represents materials in the syllabus especially in the subject.

The instrument called valid if it has validity. Here the researcher checks the instrument validity based on English Curriculum and syllabus. Based on Jack., R & Norma., E. (2009) content validity can be done by arranging the outline of the task requirement in taking the test which compares with items in the test or the content in the curriculum. Here the researcher helped by English teacher to check the instrument based on curriculum and syllabus. Here is the detail:

Table 3.2 Specification in Pre-test and Post-test achievement test on composing simple announcement text at first grade of SMALB-B Kemala Bhayangkari 2 Gresik

No	Basic Competence	Sub Basic Competence	Test	
			Pre-test	Post-test
1	Menggunakan makna yang terdapat dalam teks tulis fungsional (misalnya *undangan*, *pesan singkat*, *pengumuman*, *notices*) sederhana dan berterima.	Menggunakan makna yang terdapat dalam teks tulis fungsional (*pengumuman*) sederhana dan berterima.	Choose one topic: a. Meeting schedule at students association b. Joining extracurricular activities at school	Choose one topic: (free to consider the schedule, place & extracurricular activities) a. Meeting schedule at students association b. Joining extracurricular activities at school

A set of test of writing material which related with the syllabus and the curriculum that school used is constructed for this study to identify the students' ability in writing. While the goals are about what the significant effect of using interactive writing instruction toward hearing impaired students' ability in writing. The item of the test is taken from teachers hand book the title is Bahasa Inggris kelas X Tunarungu SMALB-B. The question has been created with several modifications and additional detail questions.

3.3.4 The Procedure of Collecting Data

To collect the data for this study the researcher conducted several steps. At the beginning, the researcher asks permission to the headmaster of SMALB-B Kemala Bhayangkari 2 Gresik to do the experiment that would take five weeks. After that, the researcher gives pre-test to explore the data of students writing ability in composing simple text on announcement text before teaching the students by using interactive writing instruction. Then, the researcher begins to

teach writing toward the hearing impaired students it takes three meetings. The researcher considers the three meetings in teaching writing by using interactive writing instruction because the researcher has been checked on the syllabus of English at first grade of SMALB-B Kemala Bhayangkari 2 Gresik used. The last, the researcher gives post-test to find the result of the students' writing ability after being taught.

During doing this study, the researcher has schedule to conduct the study as follow:

Table 3.3 the schedule of implementation

No	Meeting	Activity	Time
1	1st	Giving Pre-test	70 minutes
2	2nd	Giving first treatment	100 minutes
3	3rd	Giving second treatment	100 minutes
4	4th	Giving third treatment	100 minutes
5	5th	Giving Post-test	70 minutes

In this study, the researcher conducts three meetings to apply interactive writing instruction toward hearing impaired student at first grade of SMALB-B Kemala Bhayangkari 2 Gresik. Indeed, based on the table 3.3 the researcher makes three lesson plans (see Appendix 12). Further, in this study the researcher gives pre-test and post-test before and after the treatment.

3.4 Data Analysis

3.4.1 Scoring Technique

This study use scoring technique based on the standard criteria of writing compositions. According to C.R. Kotari. (2004) the scoring guide used the method of analytical and was chosen because it was ideally suited to the classroom situation. Its certain features have been graded separately. In giving score toward students writing, the researcher used analytical scale which categorized by some points. The rubric was used to evaluate students' written works. In this study covers some aspect such as Organization (date and time, place, person and address), content, grammar, and spelling. The researcher uses analytical scoring rubric that has been created with several modifications and additional detail criteria.

Table 3.4 Rubric for announcement text

CRITERIA	WEIGHT	LEVEL AND DESCRIPTION				SCORE
		20 – 40 Poor	**41 – 60 Enough**	**61 – 80 Good**	**81 – 100 Excellent**	
Organization (date and time, place, person and address)	25%	Mention 1 Organization	Mention 2 Organization	Mention 3 Organization	Mention all Organization	
Content	25%	The content does not match at all with the theme which is chosen by the teacher and entail little information	The content of announcement little match with the theme which is chosen by the teacher and entails some information	The content of announcement match with the theme which is chosen by the teacher and entails some information	The content of announcement match with the theme which is chosen by the teacher and entails all the detail information	
Grammar	25%	Many grammatical errors (>6 errors)	A few grammatical errors (4-6 errors)	Almost no grammatical errors (1-3 errors)	No grammatical errors.	

Spelling	25%	Many spelling errors (>7 errors)	A few spelling errors (4-7 errors)	Almost no spelling errors (1-3 errors)	No spelling errors.

The guide for scoring:

The total of the score for each aspect will accumulate from the percentage of each aspect. Then, times with the periodic of the score in each criteria.

Score : the percentage for each aspect X periodic score from each criteria

: (the weight of percentage) X (periodic score for each criteria)

Table 3.5 Scoring Criteria

Score	**Criteria**
86-100	Excellent
71-85	Very Good
56-70	Good
41-55	Fair
26-40	Poor

3.4.2 Analysis the data of test

After conducting pre-test and post-test the next step is analyzing the data. In conducting a research, it is a requirement to analyze the data in order to interpret the data obtained from the field. The data analysis is carrying out in order to answer the research problems with the data obtained through pre-test and post-test. The researcher analyzes the data by using Wilcoxon Sign Rank test because the Wilcoxon Sign Rank test calculates on the same subject which the treatments are applied and the data is not normal. Further, the sample for this study is only five. Wilcoxon Sign Rank test is carried out to determine whether the mean of the differences between two paired samples differs from a target value. The researcher used SPP version 16.0 to compute the statistic, it is conducted in order to find the effect of the treatment whether it is significant or

not using interactive writing instruction. The main assumption for the Wilcoxon Sign Rank test is the difference scores are normally distributed or there is a sufficiently large sample size. Notice that we no longer have an assumption about the homogeneity of the variances, because we are comparing each score with its pair. This is benefit of the Wilcoxon Sign Rank test.

3.4.2.1 Normality Testing Using One-Sample Kolmogorov-Smirnov

Normality testing is needed to find out whether the data is in normal distribution or not. The normality of data is important because the data can be considered to represent the population when it is normal distribution. Therefore, the researcher intended to test the normality of the data by using SPSS 16.0 with One-Sample Kolmogorov-Smirnov method. The normality testing towards the pretest scores.

The hypotheses for testing normality are:

a. H_0: Data is in normal distribution

b. H_a: Data is not in normal distribution

The hypotheses for normality testing say that the data is in normal distribution if H_0 is accepted and on the contrary, the data is not normal distribution if H_a is accepted. The H_a is accepted when the significance value is lower than 0.05 ($\alpha = 5\%$), while H_0 is accepted when the significance value is higher than 0.05 ($\alpha = 5\%$).

3.4.2.2 Hypothesis Testing Using Wilcoxon Sign Rank

The used of Wilcoxon Sign Rank is to find the significant difference on the students' score before (pre-test) and after (post-test) being taught by using interactive writing instruction. The steps of Wilcoxon Sign Rank calculation are:

The first step is 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 no significant effect of using interactive writing instruction toward hearing impaired student's ability in writing skill at first grade of SMALB-B Kemala Bhayangkari 2 Gresik". The hypothesis can be formulated as follow:

Null hypothesis is $\mu_1-\mu_2 = 0$ ($\mu_1=\mu_2$)
Alternative hypothesis is $\mu_1-\mu_2 \neq 0$ ($\mu_1\neq\mu_2$)
Hypothesis testing in this research:

H_0: There is no significant effect of using interactive writing Instruction toward hearing impaired student's ability in writing skill at first grade of SMALB-B Kemala Bhayangkari 2 Gresik

H_1: There is a significant effect of using interactive writing instruction toward hearing impaired student's ability in writing skill at first grade of SMALB-B Kemala Bhayangkari 2 Gresik

The second step is finding the difference score for each matched pair, and then finds out the average of such differences, Đ along with the sample variance of the difference score. If the values from the two matched samples are denoted as X_i and Y_i and differences by D_i ($D_i = X_i - Y_i$), then the mean of the differences i.e.,

$$D = \frac{\sum Di}{n}$$

And the variance of the differences or

$$(\sigma diff)^2 = \frac{\sum D_1^2 - (D)^2 . n}{n - 1}$$

Assuming the said differences to be normally distributed and independent, we can apply the Wilcoxon Sign Rank for judging the significance of mean of differences and work out the test statistic *t* as under:

$$t = \frac{D - 0}{\sigma diff/\sqrt{n}} \text{with } (n - 1) \text{degrees of fredom}$$

Where:
D = Mean of differences
Σ*diff* = Standard deviation of differences
n = Number of matched pairs

Clearly, the result of the test is subjected for the following statistical procedures. In calculating Wilcoxon Sign Rank test, the researcher uses SPSS 16.00 version. The steps in analyzing the data of pre test and post test as follows: first, input the data of pre and post test in SPSS program. Second, click Analyze > Non-Parametric Tests > 2 Related Samples on the top menu. Third, will be presented with the 2 Related Samples Test dialogue box. Fourth, transfer the variables into the 2 Related Samples Test box. Fifth, click the continue button, will be returned to the 2 Related Samples Test dialogue box. The last, click the OK button.