CHAPTER III

RESEARCH DESIGN

This chapter presents the description of the research method used in this study. It consists of research design, population and sample, research instrument, and the technique of collecting data, validity and reliability of data, the technique of data analysis and the statistical hypothesis.

A. Research Design

The method for the research is quantitative research, namely quasi experimental design which is not random assignment of participants two group (Creswell:2012). The quantitative data is gained through pretest and post-test as the instrument of method of research.

Table 3.1 Design for pre-test and post-test (Sukardi:2003)

	Group	Pre-Test	Dependent Variable	Post-Test
(R)	Experiment	Y_1	X_E	Y_2
(R)	Control	Y_1	X_K	Y_2

R = Randomize subject

Y_1 = Pre-Test (test before applying the treatment)

Y_2 = Post-Test (test after applying the treatment)

X_E = Treatment for experimental class using Think-pair-Share

X_K = Treatment for controlled class using conventional method

There are two classes which were involved in this study. The first class was an experimental class and the second class was a controlled class. Both of the classes are taught with different methods of teaching, experimental class used Think-Pair-Share technique and controlled class used conventional method.

B. Variable

Variable is everything that will become that object of research or the influence. Variable is everything to which the researcher expect to find the answer and that become point of research. Based on the title of the thesis, it has two variable.

1. Independent variable (x)

Independent variables are the variable is that consequence of or upon antecedent variable. In the field of education were identified as independent variables of which include methods of teaching, miscellaneous frequency (reinforcements), learning materials, etc.

This variable is often called as stimulus, predictor, and antecedent. Independent variable is a variable which influence and give good effects in dependent variable. Independent variable can stand by itself without dependent variable. Independent variable in this study is the use of Think-Pair-Share.

2. Dependent variable (y)

Dependent variable is a response of variable that is presumed to be caused by the independent treatment or other independent variable. Called the dependent variable because they are dependent function of the independent variable. It is often called as output variable, criteria and consequent. Dependent variable is a variable that emerge in function relationship influence by independent variable.

C. Population and Sample

1. Population

The population of this research was all of the students of SMPN 02 Pakel, in Grade 1 Academic Year 2016/2017. There are six classes of the first grade, consist of 141 students. Every class average of 22 until 25 students, we can look as follow:

7 A : 24 students

7 B : 25 students

7C : 22 students

7 D : 23 students

7 E : 23 students

7 F : 24 students

2. Sample

The sample was collected by using purposive sample, because it had specific purpose. This technique is commonly used because of some reason; limitation of time, energy, and cost. Firstly, the researcher decided the sample based on the information of the English teacher about the class, and knowing the average scores of writing ability of two classes. For that purpose, the researcher took the sample based on situation of the class and students that have same characteristics and ability in learning English (Arikunto:2011).

In this study the researcher took two classes as the sample, namely 7C and 7F. The classes have been treated with two different treatments. For class 7F is using Think-Pair-Share method as the experimental class and class 7C without any treatment (conventional method) as the controlled class.

D. Research Instrument

The instrument used by the researcher in this research was written test. Based on Hughes (2003) the best way to test people's writing ability is to get them to write. The researcher conducted the tests by using pre-test and post-test for experimental and control class. In this research the researcher gave different topic for pre-test and post-test. In the pre-test the topic is about "school environment" and post-test the topic is about "the interesting places" based on the syllabus and lesson plan. For experimental and controlled class, they have the same topic to

measure their achievement in test of writing even though they have different methods, for experimental class using Think-Pair-Share and controlled class using conventional method. The instrument of the pre-test and post-test can be seen on appendix 2 and 3.

The tryout was subjected to validity and reliability test. The tryout test was done for 7B class. 7B was not a class used for doing research. The tryout was done at April 6th 2017. It followed by 20 students. The writing test for tryout can be seen on appendix 4. Validity is an essential criterion for evaluating the quality and acceptable of the research. The validity of a test is the extent to which it measures what it is supposed to measure (Heaton:1995). Every test, whether it is a short, informal classroom test or a public examination, should be as valid as the constructor can make it.

The researcher ensures that the instrument should be measured. Before doing research, the researcher did consultation to her thesis advisor and the English teacher at school related to appropriateness of instrument in which the test would be given to the student. To support the validity of the test, the researcher had made the relevance of the topic of writing based on the Standard of Competence and Basic Competence. It includes; the objective of the test, the indicators, and the instruction within order to the instrument is valid. Standard of Competence and Basic Competence is based on the curriculum School-Based Curriculum, the Standard of Competence and Basic Competence can be seen on the researcher lesson planning.

Then the researcher decided the reliability of test. Reliability is a necessary characteristic of any good test, for it is to be valid at all, a test must first be reliable as a measuring instrument (Heaton:2003).

E. Validity and Reliability Testing

In this study, the researcher used a test as the research instruments. Both pre-test and post-test were intended to measure students' writing ability. The tests should fulfill some factors to get the data as well. The factors tested here are validity and reliability of the test. By using a valid and reliable instrument to collect data, it was expected that the data and the result of the research itself also valid and reliable.

1. Validity testing

Validity is the most important consideration in developing and evaluating measuring instrument. Ary (2010) defined validity as the extent to which an instrument measured what t claimed to measure. In other words, validity can be defined as the instrument that measures what is supposed to be measured. In this study, to ensure tests validity the researcher used content validity, construct validity, and face validity.

a) Content Validity

The content validity is composed of two item; validity and item validity (Lidico:2006). Both sampling validity and item validity involve having experts examine item that make up the instrument.

The test was said have content validity if its contents constitute a representative sample of language skills, structure, etc., being tested. Beside that the content of instrument has two relevant with the purpose of the test. in this case, the content validity should refer to the "School-Based Curriculum, it is mentioned that the eight grade of Junior High School are expected able to comprehend the meaning of the simple text in the form of descriptive text to interact with the society around them. Based on standard competence above, the students are expected t be able to write a simple text in the form of descriptive text.

In this research, the content of item is testing used descriptive text. It was suitable for the seventh grade students of SMPN 02 Pakel Tulungagung.

Table 3.2 Content Validity

Standard Competence	12. Mengungkapkan makna dalam teks tulis fungsional dan esei pendek sangat sederhana berbentuk *descriptive* dan *procedure* untuk berinteraksi dengan lingkungan terdekat
Basic Competence	12.2 Mengungkapkan makna dan langkah retorika dalam esei pendek sangat sederhana dengan menggunakan ragam bahasa tulis secara akurat, lancar dan berterima untuk berinteraksi dengan lingkungan terdekat dalam teks berbentuk *descriptive* dan *procedure*
Indicator	Membuat teks diskripsi yang sesuai dari tema yang telah diberikan.
Technique	Writing test
Instrument of Test	Pre-test Post-test

b) Face Validity

A test is said to have face validity if it measures what is supposed to measure. Face validity is hardly a scientific concept that is very important. A test which does not have face validity may not be accepted by test takers, teachers, educations, authorities, or employers. This research was validated by the expert. In this research the validation was done by English teacher of SMP Negeri 02 Pakel. Paper validation of the expert can be seen on appendix 5. In this test, there are some aspects that are consideration from this test to make a good test based on the validity.

1. The instruction must be clear for student
2. In this test, the students can conduct a paragraph and express their ideas in a piece of paper. The instruction based on syllabus and suitable with their level.
3. Time allocation must be clearly. The teacher give limited about 30 minutes write a paragraph.

c) Construct Validity

The construct validity of test which is capable of measuring certain specific characteristic in accordance with a theory of language behavior and learning. Specifically, construct validity of experiments is defined as the validity of the inferences made about a construct based on the measures, treatment, subjects, and settings used in an experimental study.

The researcher tried to check the empirical validity by using SPSS 16.0 after trying out the instrument. In this research, the researcher used SPSS 16.0 for windows to know the validity of the instrument. It can use corrected item-total correlation formulation. The criteria of validity of the instrument can be divided into 5 classes as follow (Ridwan: 2004) :

1. If the *item-total correlation* score 0.00 – 0.20: less valid
2. If the *item-total correlation* score 0.21 – 0.40: rather valid
3. If the *item-total correlation* score 0.41 – 0.60: enough valid
4. If the *item-total correlation* score 0.61 - 0.80: valid
5. If the *item-total correlation* score 0.81 – 1.00: very valid

Table 3.3 Result of Validity Test

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR00001	58.3000	31.484	.750	.[a]
VAR00002	63.5000	35.105	.750	.[a]

a. The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item codings.

Based table on above shows the result item- total correlation was 0.750, it's means the score is valid.

2. Reliability Testing

Reliability of a test can be derived from reliability coefficient. Reliability as the degree of the consistency with which an instrument measures whatever is measuring (Ary:2010). Thus, it can be said that a reliable testis consistent and dependable. The range of reliability coefficient is 0-1. In this case, 0 means not reliable while 1 means perfectly reliable and the closer reliability coefficient to 1, the more reliable a test is. The result of the tryout test was scored by the teacher and the researcher (scoring rubric presented on appendix 6).

The criteria of reliability instrument can be divided into 5 classes a follows (Ridwan:2004), those are :

1. If the *alpha cronbach* score 0.00 – 0.20: less reliable
2. If the *alpha cronbach* score 0.21 – 0.40: rather reliable

3. If the *alpha cronbach* score 0.41 – 0.60: enough reliable
4. If the *alpha cronbach* score 0.61 - 0.80: reliable
5. If the *alpha cronbach* score 0.81 – 1.00: very reliable

Table 3.4 Result of Reliability

Reliability Statistics

Cronbach's Alpha	N of Items
.857	2

Based table on above, that the test can said reliable or not can be seen through alpha cronbach's. The score of alpha cronbach's 0,857 it's means reliable.

F. Normality and Homoginity Testing

1. Normality Testing

Normality test are used to determine whether a data set is well-modeled by a normal distribution or not, or to compute how likely an underlying random variable is to be normally distributed. Normality test is intended to show that sample data come from a normally distributed population.

a) Normality Testing of Control Class

Table 3.5 Normality Control Test

One-Sample Kolmogorov-Smirnov Test

		PRETEST	POSTTEST	Unstandardized Residual
N		22	22	22
Normal Parameters[a]	Mean	65.14	73.05	.0000000
	Std. Deviation	6.251	3.860	4.84849338
Most Extreme Differences	Absolute	.201	.141	.182
	Positive	.091	.141	.111
	Negative	-.201	-.124	-.182
Kolmogorov-Smirnov Z		.941	.662	.854
Asymp. Sig. (2-tailed)		.339	.774	.460

a. Test distribution is Normal.

Based on the table above is known that the significance value from pre-test is 0.941 and from the post test is 0.662. Both value from pre-test and post-test are bigger than 0.05. The sig/p value on pre-test is 0.941 and it is bigger 0.05 (0.941> 0.05) means that the data is in normal distribution. Then, for post-test score the value of sig/p is 0.662 and that is bigger than 0.05 (0.662> 0.05) means that the data is in normal distribution. It also means that H_0 is accepted and H_a is rejected. So, it can be interpreted that both of data (pre-test and post-test score) are in normal distribution.

b) Normality testing of Experimental Class

The normality testing used to check the data is normally distributed or not. The formula used to test the normality of the data was Kolmogorov - Smirnov test by the value of significant (*a*) = 0.050. normality test was done by using the rule of asymp. Sig (2 tailed) or p>0,05, so the test distribution is normal. The result can be seen below:

Table 3.6 Normality Experiment Test

One-Sample Kolmogorov-Smirnov Test

		Pretest	Posttest	Standardized Residual
N		24	24	24
Normal Parameters[a]	Mean	66.9167	77.0000	.0000000
	Std. Deviation	4.29273	3.27042	.97801929
Most Extreme Differences	Absolute	.097	.203	.089
	Positive	.083	.203	.089
	Negative	-.097	-.112	-.070
Kolmogorov-Smirnov Z		.475	.997	.436
Asymp. Sig. (2-tailed)		.978	.274	.991

a. Test distribution is Normal.

Based on the table above is known that the significance value from pre-test is 0.475 and from the post test is 0.997. Both value from pre-test and post-test are bigger than 0.05. The sig/p value on pre-test is 0.475 and it is bigger 0.05 (0.475> 0.05) means that the data is in normal distribution.

Then, for post-test score the value of sig/p is 0.997 and that is bigger than 0.05 (0.997> 0.05) means that the data is in normal distribution. It also means that H_0 is accepted and H_a is rejected. So, it can be interpreted that both of data (pre-test and post-test score) are in normal distribution.

2. Homogeneity Testing

Homogeneity testing is intended to make sure that the collected manipulation data in analysis is truly taken form population which is too different each other. Especially in a correlative study which is predictive, the model which is used must be appropriate with the composition and its distribution. To know the homogeneity, the researcher used *Test of Homogeneity of Variances* with SPSS.16 by the value of significance (α) = 0.050. The variance can be said homogeneous if the of the result is more than 0.05. The result can be seen below:

a) Homogeneity Testing of Control Class

Table 3.7 Homogeneity Control Test

Test of Homogeneity of Variances

PRETEST

Levene Statistic	df1	df2	Sig.
2.327	5	12	.107

Based on the table above is known that the sig/p value is 0.107 higher than 0.05 means H_0 is accepted and H_a is rejected. So, it can be interpreted that the data is homogeneity.

b) Homogeneity Testing of Experiment Class

Table 3.8 Homogeneity Experiment Test

Test of Homogeneity of Variances

VAR00001

Levene Statistic	df1	df2	Sig.
1.102	5	13	.406

Based on the table above is known that the sig/p value is 0.406 higher than 0.05 means H_0 is accepted and H_a is rejected. So, it can be interpreted that the data is homogeneity.

G. Data Collecting Method

To collect the data, the researcher administered test. The test was distributed through pre-test and post-test. The aim of test is to measure students' ability in writing descriptive text before and after being taught by using Think-Pair-Share technique.

1. Pre-Test

At the first meeting, the researcher administered pre-test to student. The purpose of pre-test is to measure student' score in writing descriptive text without Think-Pair-Share technique. This test is given to know how far student's ability in writing descriptive text. Pre-test was done at April 8th 2017. The researcher came to the class and explains to the student about descriptive and administered student to do task. Make a descriptive text about school environment. Pre-Test was done by 7C and 7F class. 7C consist of 22 students

as control class. 7F consist of 24 students as experiment class The researcher gave 60 minutes to finish it.

2. Post-Test

In last meeting, the researcher administered the post-test to measure the student's score in writing descriptive text after taught using Think-Pair-Share technique. The time allocation to do the post test was 60 minutes. The test in posttest and pretest was different but has same the difficulty. The test was used to measure the student skill in writing, especially in writing descriptive text after taught using Think-Pair-Share technique. It was done to know the final score of student after taught using Think-Pair-Share technique and one of the requirements to compare and commutating the effectiveness score using SPSS Statistics

H. Data Analysis

Data analysis is the way data were analyzed by the researcher. In managing and analyzing the data collected, the researcher was used quantitative data analysis so the researcher was analyzed the data by using statistical technique. The data analysis was used to find the significant difference of the students' writing descriptive text ability before and after the use of Think-Pair-Share. In this study, the researcher used paired sample T-Test through SPSS 16.0 to analyze the data. If the result of T-Test was bigger than the level of significance 0.05, the null hypothesis could not be rejected indicating that Think-Pair-Share was not effective toward students' writing ability in descriptive text. By contrast, if significant level was lower than T-Test at the level of significance 0.05, the null

hypothesis could be rejected indicating that the Think-Pair-Share was effective toward students' writing ability.

I. Procedure of Treatment

1. The researcher was explaining what the descriptive text is.
2. The researcher was explaining part of the descriptive text.
3. Researcher was explaining about Think-Pair-Share technique
4. Researcher was giving oral instruction
5. Students think privately about the theme or topic is given
6. The researcher was dividing students in a group.
7. Each group consists of 2 students
8. Each pair was discussing by them selves
9. Each pair presents what they have discussed before.
10. Each pair presents in front of class.