CHAPTER III

RESEARCH METHODOLOGY

This chapter presents the research methodology includes research method, research design, population and sample, research instrument, data collection technique, data analysis technique.

A. The Research Method

This research, the researcher used a quantitative research method to get specific data on students' reading comprehension. Based on the statement by Creswell (2014) about quantitative research, he states that quantitative research is an approach to test the objective theory by examining relationships between variables. Research on these two variables can be commute from the instrument so that data in the form of numbers can be analyzed using statistical procedures. The purpose of the experimental study is to determine whether a program or discovery has a causal effect intended for program participants. There are three components of the experimental research design: pre-test, treatment group, post-test.

B. Research Design

A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose. The research design is the conceptual structure within which research that conducted; it constitutes the blueprint for the collection, measurement, and analysis of data (Tavakoli, 2012: 546-7) as cited (Kaswan and Suprijadi, 2016:10). Claim that the

design of quantitative research includes an experimental method, correlational method, causal-comparative method, and survey method.

In this research, the researcher will use a Quasi-Experimental research design. There will be uses two groups or classrooms, one as the experimental class and one as the control class. The experimental class is taught reading comprehension by using a collaborative approach trough the TPS strategy, and the control class is using a scientific approach. The pretest will be given to find out students' ability in Reading Comprehension before the researcher will give the treatment. The posttest will be given to find out students' ability in Reading Comprehension after the researcher gave the treatment using Think Pair Share technique in the classroom. The pretest and posttest design may illustrate as follow:

Table 3.1 The Research design

A	→	X_1 **x** X_2
B	→	X_1 → X_2

Remark:

A: Experimental Group

B: Control Group

X_1: Pretest (a test that given before the treatment is applied)

X: Treatments (teaching listening through drill technique)

X_2: Post-Test (a test that, after the treatment is applied)

Hatch and Farady (1982)

C. Population and Sample

1. Population

The population of the study was the seven grade students in SMPN 2 Haurwangi Cianjur. Seventh grade has five class that VII A - F, and researcher have consistent with two class. That is VII D and VII E with 30 students in each class. Thus, the total of the population is about 60 students. The research conducted in two classes, they are VII^{D} class as Control class and VII^{E} class as an experimental class, and it implemented on 12 February 2019 until 21 March 2019. The research also conducted for seven meetings, and each meeting has a duration for about 45 minutes.

2. Sample

The sample of the study is only two classes of the seven grade students. The researcher got class VII^{D} and VII^{E} from the English teacher's recommendation because both of the class had the same characters, and both of class have got the material about the descriptive text.

D. Research Instrument

1. Test

a. Pre-test and Pos-test

In the first meeting, was given the pretest in the experimental group and control group. This test had aimed at discovering students' previous ability in describing something. The post-test also gave at the end of the meetings. The post-test aimed

to reveal the differences between the two groups after given the treatments. Concerned the validity, the test was valid

b. Validity

Validity is a requirement for both quantitative and qualitative. Validity refers to the degree to which a study and its result correctly lead to, or support, precisely what claimed. Generally, validity refers to the appropriateness, meaningfulness, correctness, and usefulness of the inferences a researcher makes. Validation is the process of collecting and analyzing evidence to support such inferences. In quantitative research, validity might be improving through careful sampling, appropriate instrumentation, and appropriate statistical treatments of the data (Tavakoli, 2012: 699) as cited (Kaswan & Suprijadi, 2016:88). Also, the test consists of 50 multiple choices, but after the validity test, there are only 30 multiple choices valid.

Validity index is (0,3). SPSS output for testing much validity, but what needs to be interpreted in the validity test lies in the Item-Total Statistics table. The validity of each item can be seen in the value of Corrected-Item Correlation in the Item-Total Statistics table. Interpretation: if the values in the Corrected Item-Correlation column are equal to or higher than the validity index (0.3), then these items are declared valid, (Nitko in Sugiyono, 2013: 197; Pallant, 2011: 100) cited from the book (Sadikin et al., 2019). The following are the results of the test validity analysis.

Table 3.2

Validity test

Item-Total Statistics					
No Soal	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Ket
Soal1	28,70	55,252	0,480	0,829	Valid
Soal2	28,73	54,892	0,525	0,827	Valid
Soal3	28,60	56,386	0,345	0,832	Valid
Soal4	28,43	56,254	0,475	0,830	Valid
Soal5	28,57	54,806	0,591	0,826	Valid
Soal6	28,53	56,051	0,423	0,830	Valid
Soal7	28,83	55,730	0,414	0,830	Valid
Soal8	28,97	56,585	0,328	0,832	Valid
Soal9	28,97	56,999	0,268	0,834	Tidak Valid
Soal10	28,57	56,254	0,376	0,831	Valid
Soal11	28,37	56,240	0,604	0,829	Valid
Soal12	28,40	56,938	0,391	0,832	Valid
Soal13	28,53	56,257	0,391	0,831	Valid
Soal14	28,47	56,051	0,473	0,830	Valid
Soal15	29,00	56,690	0,326	0,833	Valid
Soal16	28,93	56,547	0,322	0,833	Valid
Soal17	28,43	56,530	0,425	0,831	Valid
Soal18	28,90	56,645	0,300	0,833	Valid
Soal19	28,77	58,530	0,040	0,839	Tidak Valid
Soal20	28,93	58,685	0,025	0,839	Tidak Valid
Soal21	28,83	56,764	0,274	0,834	Tidak Valid
Soal22	28,67	56,299	0,341	0,832	Valid
Soal23	28,53	58,464	0,063	0,838	Tidak Valid
Soal24	28,70	58,769	0,010	0,840	Tidak Valid
Soal25	28,47	59,154	-0,035	0,840	Tidak Valid
Soal26	28,37	56,861	0,466	0,831	Valid
Soal27	28,47	56,671	0,369	0,832	Valid
Soal28	28,63	59,068	-0,028	0,841	Tidak Valid
Soal29	28,40	57,972	0,191	0,835	Tidak Valid
Soal30	28,73	58,478	0,047	0,839	Tidak Valid
Soal31	28,47	56,740	0,358	0,832	Valid
Soal32	28,63	55,964	0,395	0,831	Valid
Soal33	28,53	58,809	0,013	0,839	Tidak Valid
Soal34	28,67	58,230	0,082	0,838	Tidak Valid
Soal35	28,97	56,240	0,378	0,831	Valid

Soal36	28,70	56,010	0,376	0,831	Valid
Soal37	28,90	56,576	0,310	0,833	Valid
Soal38	28,67	55,747	0,417	0,830	Valid
Soal39	28,63	56,861	0,270	0,834	Tidak Valid
Soal40	28,83	56,489	0,311	0,833	Valid
Soal41	28,83	59,592	-0,096	0,843	Tidak Valid
Soal42	28,50	57,776	0,174	0,836	Tidak Valid
Soal43	28,53	57,430	0,215	0,835	Tidak Valid
Soal44	28,83	56,351	0,330	0,832	Valid
Soal45	29,03	58,102	0,124	0,837	Tidak Valid
Soal46	28,77	54,875	0,526	0,827	Valid
Soal47	29,00	59,793	-0,129	0,842	Tidak Valid
Soal48	28,90	57,886	0,130	0,837	Tidak Valid
Soal49	28,63	55,413	0,472	0,829	Valid
Soal50	28,60	55,697	0,443	0,830	Valid

Based on the results of the multiple-choice validity test, from fifty test questions, the results of the multiple questions were thirty-one questions, and the researchers had used thirty valid items as a matter of pretest and posttest.

c. Reliability

Reliability means that scores from the instrument are stable and consistent. Scores should be nearly the same when researchers administer the instrument multiple times at different times. Also, scores need to be consistent. When an individual answers specific questions one way, the individual should consistently answer closely related questions in the same way (Kaswan & Suprijadi, 2016:89).

Table 3.3 Reliability test

Reliability Statistics

Cronbach's Alpha	N of Items
0,836	50

Based on the results of the question, reliability analysis consists of 50 items and seen from crunch branch alpha, which is 0.836 higher than reliability index 0.7.

To find out the instrument's ability, invalidity, and reliability tests that have high and low capabilities can be seen by discriminating power items.

d. Observation

Observation is to make direct observations of the object of research to see closely the activities carried out (Sudaryono, 2016). The researcher will observe the situation in the classroom in the teaching and learning process. Observation is needed to see the implementation of the Collaborative Approach and Scientific Approach. That observation does at four times, including visible and twice teaching meetings for tests. Learning lasts 80 minutes per session. Four meetings were chosen to describe the implementation process using a collaborative approach.

e. Interview

An interview is a dialogue conducted by the interviewer to obtain information from the interviewee. The interview consisted of the experiment class and control class. The aimed to find out students' difficulties in reading during the lesson. The interview is used by researchers to judge someone including student abilities reading, student weaknesses in reading, student difficulties in reading, students reading texts using reading strategies, helping students to understand English texts, using Think Pair Share in teaching reading comprehension.

E. Data Collection Technique

In this research, the data used is quantitative. This research needs many data to be analyzed. There are:

1. Test

a. Pretest

In the beginning, the pretest given to attending class VII D and VII E of SMPN 2 Haurwangi. On Wednesday, 13 February 2019, the purpose was to know the students' knowledge about the material that will teach and also to decide experimental class and control class among VII D and VII E. The use of pretest is to determine the students' skill before giving some treatments. In this research, the pretest is a reading comprehension test and consists of 30 items of multiple-choice questions.

b. Posttest

The experimental class and control class was given the posttest. On 20 March 2019, the purpose was to know the students' knowledge and to know the difference between a collaborative approach (TPS) technic and a scientific approach in teaching reading descriptive text. Posttest was used to determine the students' skill after giving the treatment. The form of the posttest is the same as the pretest form.

2. Observation

The observation of the researcher having during the treatment. The researcher observes the activity in the classroom. Then the observation data is taken from the field notes from each meeting. Content contained in finding students paying attention to teacher explanations, assessing the way students when presenting, working on worksheets in groups, active in questions and answer sessions and the

last is checking whether there is respect/opinion received. Started on 12 February 2019 until the end of lesson 21 March 2019.

3. Interview

Interviews were carried out after completing the pretest and posttest; students experienced changes from reading the questions and reading comprehension text description on Thursday, 20 March 2019.

F. Data Analysis

1. Test

The test was analyzed using SPSS 25, and the test using multiple choice. With tests, we can infer some students who begin to understand what we teach. In analyzing data of the research, the researcher analyzes Descriptive statistics, normality, homogeneity, t-test, and N-gain.

a. Descriptive statistics

Descriptive statistics is a wide variety of techniques that allow us to describe the general characteristics of the data we collect. The central tendency consists of (typical score) the mean, median, or mode. The distribution of scores can be seen the shape or spread of the graphically (using histograms, for example) and the spread can as the range, standard deviation or variance. They are a primary term and essential in knowing the nature of the data collected. They are too easily ignored by those impressed by the complexity of inferential statistics. Descriptive statistics are useful to analyze descriptive questions (Kaswan and Suprijadi 2016:106).

b. Normality test

A normality test usually distributed a test that is used to determine if a set of data. In this research, the normality test is analyzing by the Kolmogorov Smirnov test and the Shapiro-Wilk test technique with SPSS 25. According to Field (2009: 144), "If the test (p > 0.05) it tells that the distribution of the sample is probably normal." Uyanto (2009:40) describes the hypothesis of normality test is described, as follow;

H_0: Population with normal distribution

H_1: Population with not normal distribution

If the Significance Score < 0.05 H_0 is rejected.

If the Significance Score > 0.05 H_0 is accepted.

c. Homogeneity

Homogeneity is the degree to which the variances of two or more samples are similar or homogeneous. To determine whether variance on two groups of scores is equal or similar or does not differ significantly, the researcher used SPSS 25. (Kaswan and Suprijadi 2016:115).

d. T-test

"T-test or students' T-test is a parametric test which is used to discover whether there are statistically significant differences between the means of two groups" (Kaswan and Suprijadi 2016: 122). The t-test used by the researcher to determine whether there is a significant influent of reading comprehension in the experimental class. Field (2009:144) has stated that "if the test is significant probability value less than 0.05 (p < 0.05)." The data analyzed by using SPSS 25.

e. N Gain

The normalized gain (N-gain), introduced by Hake (1998) "as a rough measure of the effectiveness of a course in promoting conceptual understanding," has become the standard measure for reporting scores on research-based concept inventories.

$$g = \frac{Posttest\ score - Pretest\ score}{Max\ score - Pretest\ score}$$

Table 3.4 N-Gain Score

N-Gain Score	Interpretation
-1.00 < g < 0.00	Decrease
g =	Stable
0.00 < g < 0.30	Low
0.30 < 0.70	Average
0.70 < g < 1.00	High

2. Observation

Observations made before the posttest or in the treatment period. On 12 February 2019 until 21 March 2019.

Tabel 3.5

Participant Activity Observation Format

Participant Activity Observation Sheet in Teaching and Learning Activities Day, Date : Subject :							
No.	Name	Aspect 1	2	3	4	5	Σ Score
1.							
2.							
…							
30.							

Table 3.6 Participant Activity Observation Criteria

No.	Aspect	Score	Kriteria Penilaian
1.	Attendance	3	Present on time during the learning Process
		2	Late
		1	Not present because of permission/illness
2.	Activeness	3	Frequently asked questions and giving opinions
		2	Ever ask and give opinions
		1	Never ask questions and give opinions
3.	Thinking together with groups	3	Active in group discussions
		2	Less active in group discussions
		1	Not active in group discussions
4.	Honesty	3	Honest when working on the test
		2	Less honest when working on the test
		1	Not honest when working on the test
5.	Ability to communicate	3	Capable and able to communicate verbally in front of the class clearly
		2	Able to communicate verbally in front of the class clearly
		1	Can not communicate verbally in front of the class clearly

3. Interview

The last step is the interview. The researcher took six students to the interviewed from various abilities of students ranging from students who were high, medium, and lacking in learning abilities, taken from the experimental class. The questions of an interview about the use of learning using the TPS method, this was used to collect data about students' feelings during the learning process, their reflection on learning, their observations during the lesson, their successes and difficulties in learning, and their perceptions of teaching materials.