CHAPTER III

RESEARCH METHOD

This chapter presents the research method. It focuses the method used in conducting this research which covers research design, population and sample, research instrument, validity and reliability testing, data collecting method, and data analysis.

A. Research Design

Research design is the way to collect and to analyzing of the data. The design used by researcher is experimental research using quantitative approach. Design of experimental research is to manipulation between two variables, she manipulates at least one independent variable and observes the effect on one or more dependent variable (Gay, 1992: 15). She used teaching Personal Vocabulary Notes (PVN) technique as independent variable and the students' achievement as dependent variable. Independent variable is the proposed causal variable, whereas dependent variable is the proposed effect of the independent variable (Gray et. al., 2007: 265).

To conduct this research, the researcher used pre-experimental design with one group pre-test and post-test design. She used one group as control group and experimental group, with used pre-test and post-test. She used pre-experimental design because it's more easy for she to compare both of group. It same with Porte (2002: 64) he said that pre-experimental designs are simple and inexpensive

to implemented and exploratory in nature, but lack control groups to compare with the experimental group. The design of pre-experimental design involves three steps; pre-test, treatment, and post-test. Pre-test is the test given to students before they get treatments and after given treatment is post-test. In one group pre-test and post-test design a single group is measured or observed not only after giving treatment, but also before a treatment. According to Ary, et. al. (2002: 303) pre-experimental design usually involves three procedures:

1. Administering a pre-test measuring the dependent variable

2. Applying the experimental treatment X to the subjects

3. Administering a post-test again measuring the dependent variable.

Table 3.1 A diagram One Group Pretest-Posttest Design

Pre-test	Independent variable	Post-test
Y_1	X	Y_2

This research uses pre-experimental design to compare between experimental group (x) and control group (y). The procedure of pre-experimental design that used one group pre-test and post-test:

1. Administering pre-test before applying strategy with the purpose to measuring the students' vocabulary achievement in the first grade students at SMP Islam Al Azhaar Tulungagung.

2. Applying treatment in teaching vocabulary by used Personal Vocabulary Notes (PVN) technique to the subject in the first grade students at SMP Islam Al Azhaar Tulungagung.

3. Administering a post-test before applying strategy with a purpose measuring the students vocabulary achievement in the first grade students at SMP Islam Al Azhaar Tulungagung.

In this research, the researcher wants to know the effectiveness of Personal Vocabulary Notes (PVN) technique in teaching vocabulary by conducting pre-experimental design. She applying one group pre-test and post-test design, she wanted to find out there is any significant different of students vocabulary achievement before and after taught by using Personal Vocabulary Notes (PVN) technique in the first grade students at SMP Islam Al Azhaar Tulungagung in academic year 2015/2015.

B. Population, Sampling and Sample

In this research, the researcher should determine the population before the sample collected. The total number of population in the first grade students at SMP Islam Al Azhaar Tulungagung in the academic year 2015/2016 is 76 which consist of three classes start from A class until C class (see table 3.2). Population is all of subject would be thorough by researcher. Arikunto (2010: 173) said that population is the overall subject of research. Population is all elements that become the areas of the research.

Table 3.2 The Distribution of Population in the First Grade Students

at SMP Islam Al Azhaar Tulungagung

Class	Total each class	Male	Female	Total Parallel
VII – A	26	52	24	76
VII – B	26			
VII – C	24			
VIII – A	22	55	31	86
VIII – B	22			
VIII – C	22			
VIII – D	20			
IX – A	21	52	35	87
IX – B	21			
IX – C	23			
IX – D	22			
Total				249

(Source: Document of SMP Islam Al AzhaarTulungagungin the academic

year 2015/2016)

Before researcher determines sample of this research, she should find type of sampling would be used in the research. Sampling is a major element in the research because it is the way or technique of taking samples out of population. Sampling is the process of obtaining a sample of selecting a number of individuals for a study in such a way that the individuals represent the large group from which they were selected (Porte, 2002: 243, Gay, 1992: 123). The purpose of sampling is to gain information about a population, rarely is a study conducted that includes the total population of interest as subject (Gay, 1992: 123). In this research, she used purposive sampling because she already know the characteristics of the class

which would be used as sample based on observation. Purposive sampling can be very useful for situations where you need to reach a targeted sample quickly and where a random process of selection or proportionality is not the primary concern (Singh, 2007: 108). In purposive sampling, she chooses the sample using experience and knowledge of the group to be sample.

The researcher needs to take a sample because the population in this research too large. Sample is very important steps in conducting a research. The "goodness" of the sample determines the generalizability of the results (Gay, 1992: 125-126). She uses the first grade students at SMP Islam Al Azhaar Tulungagung in the academic year 2015/2016 as population (see table 3.2) and the sample of this research is VII-B class. In this class there are 26 students consisting of 17 male and 9 female (see table 3.2). She only took 21 students from 26 students because the rest five (5) students are those disability and need special attention from teaches.
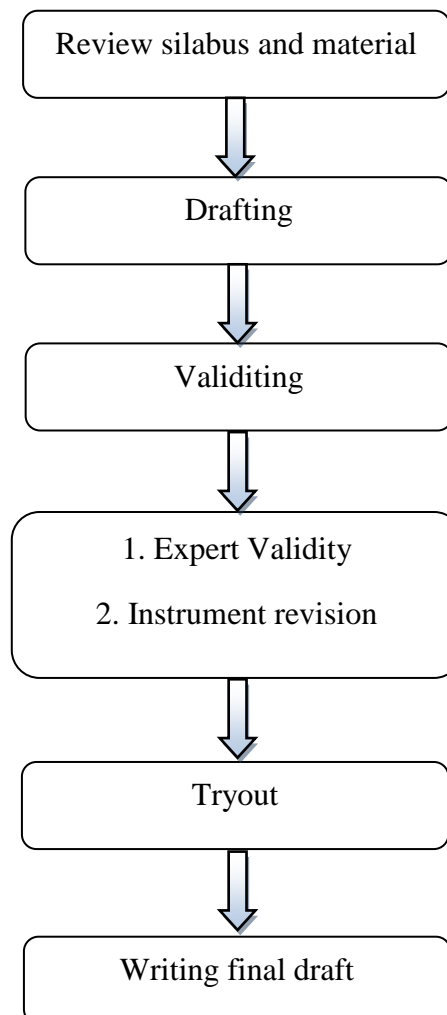
C. Research Instrument

In this research, instrument used the researcher to collecting data is a test which should be valid and reliable. Before she did her research, she prepared the instrumentation as well. Gay (1992: 147) said that whether you are testing hypotheses or seeking answers to questions, you should have a valid, reliable instrument for collecting your data. Based on the explanation above it can be concluded that to make an instrument needs more time and it depends on various

factors. In this research, she used test as instrument. Test is not necessarily a written set of questions to which an individual responds in order to determine whether he or she "passes". Test is means of measuring the knowledge, skill, feeling, intelligence, or aptitude of an individual or group (Gay, 1992: 154). The researcher used this instrument in order to know the students' achievement in learning vocabulary.

The researcher used achievement test to collected data. Achievement test measures what a person has learnt (achieved) during a course of instruction (Allison, 1999: 80). This test is used to measure the students' achievement in vocabulary before and after being taught by Personal Vocabulary Notes (PVN) technique. She used two kinds of test: pre-test and post-test. The first is pre-test which was given before the students are taught by using Personal Vocabulary Notes (PVN) technique. The researcher gave pre-test to students in order to know how far the students ability in learning vocabulary before they get treatment. The second was post-test, given to students after they were taught by using Personal Vocabulary Notes (PVN) technique. The purpose of this test is to knew the students' vocabulary achievement before they get treatment.

Conducted pre-test and post-test, the researcher developed the instrument through several steps explained in table 3.3 below:

Table 3.3 Instrumentation of Developing Test

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│   Review silabus and material   │
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┌─────────────────────────────────┐
│            Drafting             │
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┌─────────────────────────────────┐
│       1. Expert Validity        │
│                                 │
│       2. Instrument revision    │
└─────────────────────────────────┘
                 ↓
┌─────────────────────────────────┐
│            Tryout               │
└─────────────────────────────────┘
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┌─────────────────────────────────┐
│       Writing final draft       │
└─────────────────────────────────┘
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1.1 Review syllabus and material

The first step in developing the research literature is reviewing literature which consists of syllabus and instructional material. The purpose of reviewing literature is to get data on the materials used for developing pre-test and post-test, so that the instrument of test would test what should be tested. Hence, the instrument met the criteria of content validity. In addition, she reviewed syllabus as well. This is done in

order to know the materials and basic competence which should be mastered by the students of the seventh grade of SMP Islam Al Azhaar Tulungagung. Moreover, the syllabus also told her some information such time allotment, classroom activities, basic competencies and etc. The result of reviewing literature was used to write draft of test.

1.2 Drafting

The next steps in instrumentation is drafting. In process of drafting, researcher started this step by determined kinds of vocabulary test that would be used and level of difficulties that is suitable with the students in VII-B class. Before writing instrument, she also asked to her lecturer to give suggestion about the test, type of the test and content of the test. The test consists of 35 items divided into 3 kinds of vocabulary test. The first kind is simple words completion consist of 5 items about directions. There are some pictures about directions and students should complete short sentence in this task. The second type of test is cloze test that consists of 15 items. It contains of short paragraph accessed from Internet. Then, to arrange cloze test, every 4 or 5 words in this paragraph would be deleted based on parts of speech, adjective, adverb, and another aspect. The researcher also thinks whether this paragraph suitable for students ability in VII-B class. The material of this test is about occupation. The last is word search that consists of 15 items, the test is about kinds of occupation. The instrument of vocabulary test can be seen in appendix 1.

1.3 Validiting

After drafting the researcher should doing validity of the test. Validity it is the degree to which a test measures what it is supposed to measure (Gay, 1992: 155). It means that to strengthen this instrument, she needs to test its validity including content validity, face validity and construct validity to know content of test match with the material or not. In the design of quantitative research, validity is important point because test becomes main component to collected data. If test did not have validity she did not have valid data. She going to met an expert of English language teaching to did validity.

1.4 Expert Validity and Tryout

1.4.1 Expert validity

In this step, the researcher met an experts of English language teaching mainly on vocabulary learning to check the content, type of test, and level of difficulty of the draft of the research instrument. The draft consists of 35 items with divided into 3 kinds of vocabulary test (it can be seen in appendix 2). The experts that she met are an experienced English lecturer and an English teacher of SMP Islam Al Azhaar Tulungagung (see appendix 3 and 4).

1.4.2 Instrument revision

After researcher did expert validation, there are some feedbacks given by the expert validation. Feedback is used to revise the draft of the instrument. The first from directions and instructions of each task. Directions is the guideline included the explanation about how many task in this test, how to answer the questions and how many time students did this test. If she given time limits to answer the question its more easy for she to manage time. Then, instructions of each task are very important for students. They can be knew the ways to answer the questions from the instructions. The Researcher should revise the instructions in order to help students understand to answer the questions.

The second, the researcher should to revise the placement of the answer in task 2. She should arrange the answer selection above the paragraph. The purpose is to make students easy to choose the correct answer. The third, in task 3 researcher should revise all of questions. She change from matching test become simple competitions test. The test is consists of five questions and each questions should be revise by given pictures on each questions. By giving pictures its more interesting for students because there are some pictures about directions and also more easy for students to answer the questions. Not only to revise the

type of test but also to revise the task 4 which should be removed from this test because there are so many questions. The last is comes from placement of each task. Researcher should see the level of difficulty of the test. She arranged the simple word completion in task 3 to replace in task 1 and the task 1 about word search replace in task three (the find of draft vocabulary test can be clearly see on appendix 2)

1.5 Tryout

After the researcher done to revision the instrument, then she did try out this test. The purpose of conducted tryout of the instrument is to achieved the validity and reliability. Try out implemented to 5 students of the first grade students at SMPN 1 Durenan. Researcher choosing this subject based on characteristic of students that similar with the sample. Try out conducted on 8 February 2016.

1.6 Writing final draft

The last step of instrumentations is writing final draft. Writing final draft is the process of rewritten the instrument. The researcher writing final draft after the researcher conducted tryout.

D. Validity and Reliability of Test

Quantitative research measurements are validity and reliability of instrument of the research. Reliability and validity are two important concepts deal with the psychological characteristics of measurement and its precision (Singh, 2007: 76-77). Researcher used test as instrument in this research. The test is all about vocabulary test related with the topic. In this research, vocabulary test used to measure the students' achievement in learning vocabulary after they were taught by using Personal Vocabulary Notes (PVN) technique. Before she conducted this research, she should do validity and reliability testing of this test to know scores derived from instruments used in the research.

Validity it is the degree to which a test measures what it is supposed to measure (Gay, 1992: 155). It is to know the result of the instrument are appropriate, meaningful, and useful in term of the purpose of learning vocabulary. Researcher has been doing test validity to English language teaching. It was to measure whether the test has a good validity, the researcher analyzed the test from content validity, face validity and construct validity.

Content validity it refers to how much a measure covers the entire range of meanings associated with the concept (Gray et. al., 2007: 67). Content validity is the degree to which a test measures an intended content area (Gay, 1992: 156). A test had content validity if the contents represented sample of the language skill, structures would be being tested.

Face validity is representative of the concept in instrument. Face validity is an intuitive process and is established by asking other people whether the measure seems to capture the concept that is the focus of attention (Singh, 2007: 79). In this research, researcher did face validity to Expert validity. She explains about the concept of vocabulary test did match with the type of vocabulary test or not. In face validity she looks the picture that using in vocabulary test related with the questions or not and also look the placement of the test. Based on the explanation from Expert validity there are task that difficult to understand by students. Researcher should revise the instrument more understandable and interesting.

Construct validity is the test that measure the ability wants to know. According to Allison (1999: 14) construct validity is often used as a super ordinate expression, as the overall aim is to justify a test in terms of the construct or model of the abilities that it seeks to measure. Researcher should be careful choose the kind of vocabulary test and also the content should representative with the content would be measure by the researcher. Before researcher done doing validity the next steps is reliability.

Reliability is one of step before instrument used on pre-test and post-test. According to Gay (1992: 161) said that reliability is the degree to which a test consistently measures whatever it measures. It means that, reliability measure of dependability, consistency and accuracy of score result from administration of particular examination. If a test was reliable, it had good impact to data acquiring from research. In this test, the researcher conducted try out with subject students of first grade at SMPN 1 Durenan. To know reliability of this test researcher

should analyze the result of tryout by using Cronbach Alpha formula by using SPSS 16.0 windows to find the reliability. Researcher used Cronbach Alpha formula because the score of each questions is more than 1. Arikunto (2010: 239) said that Cronbach Alpha formula was used to determine reliability instrument that have score each questions not only 1 or 0 but more than 1 for example questionnaire or explanation. After researcher analyzed the data of try out using Cronbach Alpha formula, this is the result of analyze:

Table 3.4   Case Processing Summary

Case Processing Summary

		N	%
Cases	Valid	5	100.0
	Excluded[a]	0	.0
	Total	5	100.0

a. Listwise deletion based on all variables in the procedure.

Table 3.5   Reliability Statistic

Reliability Statistics

Cronbach's Alpha	N of Items
.811	35

Based on the result of Cronbach Alpha formula by using SPSS 16.0 windows we can conclude that the test is reliable. Moreover, Singh (2007: 255) said that the rule of thumb is that an alpha value of 0.60 is considered low, while alpha values in the range of 0.70–0.80 are considered optimal. The result of

Cronbach Alpha formula is 0,811, it means that the test is reliable. The conclusion is that test reliable and include in category good.

E. Normality Testing

Normality test is to determine whether a data set is well-modeled by a normal distribution or not. To know the normality, the researcher used normal distribution curve and One-Sample Kolmogorov-Smirnov test with SPSS 16.0 windows. Researcher used the result of tryout to determine the normality of the test would be used as instrument. The hypothesis for testing normaly are:

A. H_0 : Data is in normal distribution

B. H_a : Data is not in normal distribution

When the significance value is lower than 0.05 ($\alpha = 5\%$) it means that null hypothesis (H_0) is rejected and alternative hypothesis (H_0) is accepted. And if the significance value is bigger than 0.05 ($\alpha = 5\%$) it means that null hypothesis (H_0) is accepted and alternative hypothesis (H_0) is rejected. The first that researcher should doing is determine normal distribution curve. The normal distribution curve can be seen above:

Table 3.6   Curve Normality
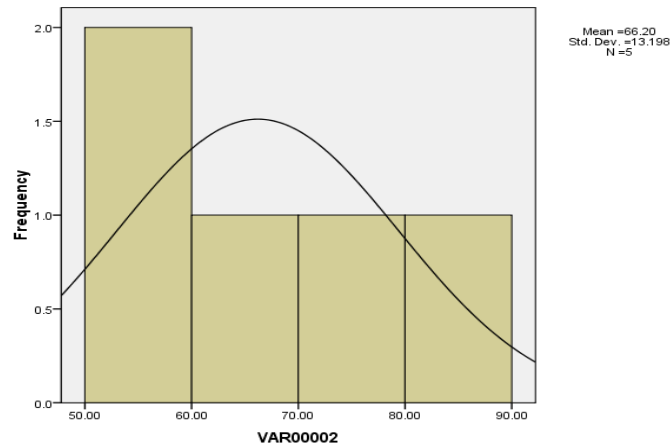
The result of normal distribution curve as follow above. From the curve above its difficult to determine it is normal distribution or not, but researcher also using One-Sample Kolmogorov-Smirnov test to find the result. By using One-Sample Kolmogorov-Smirnov test its to strengthen the result of normality testing. Then, researcher tried to conduct normality testing using One-Sample Kolmogorov-Smirnov test. The result of the test is:

Table 3.7   One-Sample Kolmogrov-Smirnov Test

One-Sample Kolmogorov-Smirnov Test

		VAR00001
N		5
Normal Parameters[a]	Mean	66.2000
	Std. Deviation	13.19848
Most Extreme Differences	Absolute	.222
	Positive	.222
	Negative	-.171
Kolmogorov-Smirnov Z		.497
Asymp. Sig. (2-tailed)		.966
a. Test distribution is Normal.		

Based on the result from SPSS 16.0 is to know the significance value from try out is 0.966. The result is bigger than 0,05 (see table 3.7) it means that H_0 is accepted and H_a is rejected and the data of test try out is in normal distribution. So, the test was used in this research have normal distribution and can be used in this research.

F. Data Collecting Method

In this research the way to collected data is data collecting method. Method of data explains about some steps which are used in the process of collecting data. The process of collecting data in this research is pre-test and post-test because researcher used quantitative research with pre-experimental research design. The results both of two test will be analyze is to know the effectiveness of Personal Vocabulary Notes (PVN) in teaching vocabulary. The first, the researcher did pre-test. Before she giving pre-test to students she introduce herself. Then, she gives vocabulary test to all of students in VII-B class. The vocabulary test consists of 35 items and there are 3 type of test. Before the test used in pre-test, researcher did validity and reliability test. In conducting pre-test, there are some students says that its too difficult and contains too many questions. The researcher try to manage the class, so students can answer the questions correctly. She gives 45 minutes to student answer the vocabulary test. Then, students submit the result of test to researcher. Pre-test was given to the students at the first meeting on 9 February 2016 (see table 3.4).

After researcher doing pre-test, she gave treatment. Treatment conducted after administration of the pre-test. The treatment here means to solve the problem that mentioned above used this technique in teaching vocabulary by using Personal Vocabulary Technique (PVN) technique. Treatment conducting on 4 days (see table 3.4). Then, she conducted post-test after giving treatment. The purpose of post-test to knew the significant different score before and after giving test. The test in post-test is same with test was used in pre-test. If there are significant different score between pre-test and post-test it means that treatment is successful. And then, if there are no significant different score the treatment unsuccessful. Researcher used one group pre-test and post-test with the test that same with both of two tests. In this research, the researcher conducted four treatments. The main point of experimental research is pre-test and post-test. Because it can be used as main data of research. The schedule of treatment can be seen below.

Table 3.8 The Schedule of Test and Treatment

Treatment and Test	One group Pre-test and Post-test
Subjects (N)	26 subjects
Topic: occupation and direction	**Pre-test**
	9 February 2016
	Treatment
	9 February 2016
	11 February 2016
	16 February 2016
	18 February 2016
	Post-test
	18 February 2016

G. Data Analysis

The purpose of data analysis in this research is to knew Personal Vocabulary Notes (PVN) technique for improving students vocabulary achievement in the first grade students at SMP Islam Al Azhaar Tulungagung in the academic year 2015/2016. According to Singh (2007: 400) data analysis is goes beyond summary and organization of data to interpreting patterns within data. In this research, to collected data she used quantitative data analysis. Quantitative data is a numerical record that results from a process of measurement and on which basic mathematical operations can be done (Singh, 2007: 123). The researcher used quantitative data analysis by statistical program.

To collect the data, the researcher conducted two times of test pre-test and post-test. The data collected by comparing the first data (pre-test) and the second data (post-test) to see there are significant different. If the students score of post-test higher than pre-test, taught by using Personal Vocabulary Notes (PVN) technique is effective. To knew the effectiveness of this technique, researcher used paired sample t-test at SPSS 16.0 by comparing the result of students test in pre-test and post-test. To analyze the data from the test, researcher conducted some steps. The formulation of t-test is:

$$t = \frac{Md}{\sqrt{\frac{\Sigma x^2 d}{N(N-1)}}}$$

Where:

       T   : t-test for different of pre-test and post-test

       Md   : average difference between pre-test and post-test

       $\Sigma x^2 d$: total of quadrate deviation

       N   : total number of students

(Arikunto, 2010: 349)

The researcher used design of this formula because she used one group design with pre-test and post-test. Before starting to analyze data with t-test formula, she should determine mean of the data of pre-test and post-test. According to Singh (2007: 404) mean is most commonly used and accepted measure of central tendency. It is obtained by adding all observations and dividing the sum by the number of observations and should be used in case of interval or ratio data. The formula to determine mean is as follows:

$$Md = \frac{\sum d}{N}$$

Where:

       Md   : Mean of the students score

       $\sum d$: the total sum of the students score

       N   : the total number of students

(Arikunto, 2010: 350)

Then, after researcher find mean of score pre-test and post-test the next steps is find total of quadrate deviation.

$$\Sigma x^2_d = \Sigma d^2 - \frac{(\Sigma d)^2}{N}$$

Where :

Σx^2_d : total of quadrate deviation

Σd^2 : gain of score in pre-test and post-test

$(\Sigma d)^2$: the total gain of score in pre-test and post-test

N   : the total number of students

(Arikunto, 2010: 351)

To determine the students test result by using Personal Vocabulary Notes (PVN) technique researcher not only by using t-test formula but also using SPSS 16.0 windows. Researcher using SPSS 16.0 windows is to strengthen the result of data in this research. The steps to analysis of the data would use SPSS 16.0 windows program with the following stages.

1. Researcher should opened SPSS 16.0 windows program
2. Then, researcher should determine mean of students score in pre-test and post-test data to compare mean with chosen paired samples t-test.
3. Those all of data move into paired variables columns.
4. After that, move data of pre-test to column variable 1 and data of post-test into column variable 2

5. Then, click "ok" to get the result.

Then, result of paired samples t-test will be analyzed in hypothesis testing. According to Singh (2007: 154-155) there are some steps to determine null hypothesis accepted or rejected:

1. Formulating a null and alternate hypothesis

2. Selecting of appropriate level of significance

3. Deciding on the location of critical region, based on the significance level

4. Selecting an appropriate test statistics to find the relevant critical value of the chosen statistics from test statistics table, to define the boundary of the critical region

5. Computing the observed value of the chosen statistics from the sample observations using test statistics

6. Comparing the sample value of the chosen statistics with the tabulated value and if the computed statistics fall in the critical region, researchers can reject the null hypothesis, otherwise they can suggest that they do not have enough evidence to reject the null hypothesis and hence can accept an alternate hypothesis.

Null hypothesis is used when the experimental data (which is represented by a sample) does not necessarily warrant a generalization (which represents the entire population) that an intended improvement in the dependent variable did not

occur (Srinagesh,2006: 337). There are two formula used to analyze hypothesis testing.

1. If t_{table} (5%) is smaller than t_{count}, the alternative hypothesis (H_a) is accepted and null hypothesis (H_0) is rejected.

2. If t_{table} (5%) is bigger than t_{count}, the null hypothesis (H_0) is accepted and the alternative hypothesis (H_a) is rejected.