

## **CHAPTER III**

### **RESEARCH METHOD**

In this chapter the researcher describes the research method. It consists of research design, population and sample, research variable, research instrument, validity and reliability testing, normality and homogeneity testing, data collection method, data analysis and hypothesis testing.

#### **A. Research Design**

According to Ary, 2002 : 24 this study is conducted in pre-experimental design using quantitative approach with one group pretest-posttest design. This study uses pre-experimental because it does not have random assignment of subject to group or other strategy to control extraneous variable. That is why in this study the researcher just takes one group or class and uses pretest and posttest to see the result of the treatment.

Quantitative research uses objective measurement and statistical analysis of numeric data to understand and explain phenomena. In quantitative research there are experimental and non-experimental research designs. Experimental research involves a study of the effect of the systematic manipulation of one variable on another variable and non-experimental research; the researcher identifies variables and may look for

relationship among them, but does not manipulate the variables (Ary, 2002:24).

This research intended to investigate the effectiveness of using TGT (Team Games Tournament) on vocabulary mastery at SMAN 1 Campurdarat. The use of the treatment is aimed at proving whether the increase scores possibly got by the researcher. Thus, the effectiveness of that treatment is known the significant score when the students taught using TGT (Team Games Tournament) technique.

## **B. Population, Sample and Sampling**

### **1. Population**

The population on this research is the First grade of SMAN 1 Campurdarat which consists of nine classes. There are 270 students of the First grade students of SMAN 1 Campurdarat. According to Ary (2002:163) population is all members of any well-defined class of people, events of objects. A population is a set (or collection) of all elements possessing one or more attributes of interest stated by (Arikunto 2006:108).

### **2. Sample**

Selected of the sample is very important step in conducting a research study. According to Arikunto (2006:109), a sample is a part of population of representative of it. Based on Ary (2002:163) a sample is a person of population. It means that a good sample must be representative of the entire as possible, so that the generalization of the sample as true as population.

According the explanation above to take a sample the writer will make lottery. Firstly, the writer writes all of the class name in piece of paper from X-IPS 1 up to X-IPS 4 classes. Then, the writer put one of the lottery, and the writer get X- 4 class as a sample of the research that consist of 28 students. So, the X-IPS 4 class will get a pretest and posttest. Based on the explanation above the sample of this research is X-IPS 4 classes that consist of 28 students, there are 14 male and 14 female at SMAN 1 Campurdarat in academic year 2016/2017.

### 3. Sampling

Sampling is a technique to taking the sample according to Ary (2010) .Sampling is also as a way the researcher select number of individuals as a sample which represents the population. Sampling is the process of selecting a number of individuals for a study in such as a way that the individuals represent the large group from which they were selected. 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, the researcher used purposive sampling technique. Purposive sampling technique is a type of non probability sampling where the researcher consciously selects subjects for addition in a study so as to make sure that the elements will have certain characteristics pertinent to the study. It normally targets a particular group of people. Purposive sampling is sample which is taken because the researcher believes that X IPS-4 could

give sufficient information. The researcher uses purposive sampling they have vocabulary knowledge on English material. So, the researcher believe that X-IPS 4 class of SMAN 1 Campurdarat can give sufficient information.

### **C. Research Variable**

In this research, the writer thinks it is important to know the meaning of variable itself. According to R.Franklen (1996:51) variable is concept a noun that stands for variation within a class of objects. According to Donald Ary (1985:39) A variable is a construct or a characteristic that can take on different values or scores. The most important classification is on the basis of their use within the research under consideration, when they are classified as independent variables or dependent variables.

#### **1. Independent variable (X)**

Independent variable is variable which is manipulated by a researcher deliberately. In this research, independent variable is teaching vocabulary by using team game tournament.

Description of team game tournament in teaching vocabulary mastery. Firstly, the researcher gives the pre-test to the students in X-IPS 4. Pre-test here is to measure how far the students' understanding about the course and how far they know about vocabulary mastery. Secondly, the researcher gives treatment to the students in vocabulary mastery using team game tournament technique with to find formulate the problems. The student can formulate the problems of their vocabulary mastery by how the way to easy understand vocabulary mastery by using team game tournament

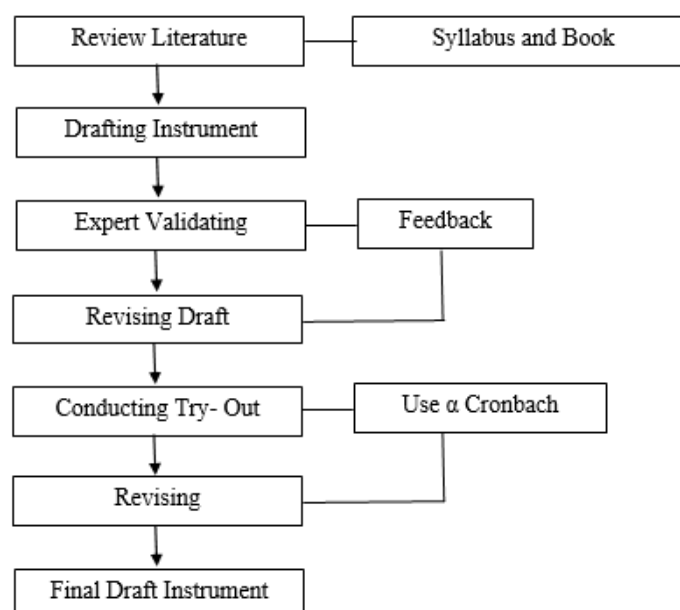
form correctly, and the researcher analyze and present the result in the vocabulary mastery. In the end, the researcher gives the post-test to the students in X-IPS 4.

## 2. Dependent variable (Y)

Dependent variable is a variable that enrage in function relationship influence by independent variable. In this research, dependent variable is vocabulary mastery.

### D. Research Instrument

Instrument of research are the tools to measure something that we observe in order to obtain the data and answer the research problems, stated by Sugiyono (2011). The instrument used in this research is a test which it is given before and after taught by using team game tournament (TGT) technique. The instrument was developed through the following steps :



**Diagram 3.1 instrument**

The steps of instrumentation, are:

1. Review Literature

The first steps to get valid and reliable test is reviewing literature concerning with the vocabulary mastery especially that in SMA. Therefore, the researcher reviewed some literatures from syllabus and book used in SMA to get some important informations as sources to drafting instrument that related with the materials of senior high school.

2. Drafting Instrument

After get some informations from reviewing literature, the researcher started to draft instrument that appropriate with the materials of senior high school.

3. Expert Validating

After finishing the drafting instrument, the instrument should be validated by the expert like English teacher or lecturer where master the materials especially vocabulary. The purpose of the expert validating is to know how much valid the instrument is either related with its construct validity, face validity, or content validity. So, in this steps the researcher will be get feedback and validation guide.

4. Revising Draft

In revising draft of the instrument, the researcher uses feedback collected from the expert validation.

## 5. Conducting Try- Out

After revising the draft of the instrument, the researcher conduct try the instrument out to the tenth grade students of SMAN 1 Campurdarat who share common characteristics with the subjects of this research. The result of try out which is analyzed using alpha cronbach is used to revise the draft to be the valid instrument because the reliability and validity of the instrument can be objectively computed by using the formula of alpha cronbach.

## 6. Revising

In revising, it part to revising the intrument again based on the feedback to get the final draft instrument. So, I will revising the instrument to make the questions ideal or not easy or too easy, difficult or too difficult.

## 7. Final Draft Instrument

The last step is final instrument means that the instrument has good or best quality where the instrument is appropriate.

In this study, the researcher applied pre-test and post-test. Pre-test was given before teaching by using team game tournament, in this pre-test students were given task during 45 minutes on October 22, 2016 and for the 45 minutes again for giving treatment to the students. The next treatment given the second meeting during 45 minutes on October 29, 2016. Post-test which was given after teaching by team game tournament, in this post-test

the students given task by using team game tournament technique during 45 minutes after the last meeting for giving treatment on November 1, 2016.

To get the data, which is X-IPS 4 class that becomes an experimental group the researcher as a teacher teaches the students during three meetings. First meeting, in the teaching learning process the teacher give pre-test in vocabulary mastery. Second meeting, the teacher teaches vocabulary mastery by using team game tournament technique. In the end, the teacher gives post-test in vocabulary mastery to the students.

#### **D. Validity and Reliability**

##### **1. Validity**

The validity of test as extent to which it measures what is supposed measure and nothing else (Heaton: 1989). To measure whether the test has a good validity, the researcher analyzed the test from content validity and construct validity.

In experimental research, the researcher had to check validity and reliability of the instrument. Validity (in testing) is the degree to which a test measure what it is supposed to measure, or can be used successfully for the purpose for which it is intended (Richard, 1992:296).

According to Brown, 2004:22 as quoted by Isnawati, 2011:16 validity is the extent to which inferences made from assessment result are appropriate, meaningful and useful in terms of the purpose of the assessment.



#### a. Content Validity

A test is said to have content validity if its contents constitute a representative sample of language skills, structures, etc. being tested. In order to judge whether or not the test has content validity, we need a specification of the skills or structure being tested. A comparison of test specification and test content is the basis for judgment for content validity. The researcher made this test based on the course objective in the syllabus of first years of SMAN 1 Campurdarat. Therefore, this is valid in terms of content validity.

#### b. Face validity

Face validity is if it looks as if it measures what it is supposed to measure. For example, a test which pretended to measure pronunciation ability but which did not require the test-takers to speak might be thought to lack face validity. This is true even if the test is constructing and criterion-related validity can be demonstrated. Face validity is hardly a scientific concept, yet it is very important. A test which does not have face validity may not be acceptable by test-takers, teachers, education authorities, and employers. The researcher used face validity by consulting with the advisor and teacher.

#### c. Construct Validity

The construct validity of a test which is capable of measuring certain specific characteristics in accordance with a theory of language behavior and learning. Based on the theory above, in the test the

researcher asked the students to answer the multiple choices based on congratulating and complimenting to measure the student's vocabulary mastery therefore, valid in term of construct validity.

The validity and reliability of the test can be measured by SPSS Alpha Cronbach. The process of using SPSS, are: Click analyze > scale > reliability analysis, then enter all of variable x to items (Alpha model) and click OK. If the result shows alpha > 0,05 it mean that the reability is sufficient, while if the alpha > 0,0 it mean that all of items are consistent and reliable. In this case, the researcher gave the students vocabulary mastery test in using Team Game Tournament technique.

Besides, the researcher tried to check the empirical validity by using SPSS 16.0 after trying out the instrument (pre-test and post-test). In this research, the researcher used SPSS 16.0 for windows to know the validity of test instruments. It can use corrected item-total correlation formulation. the criteria of validity of the instrumen can be divided into 5 classess as follows (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

In this test the researcher, give the multiple-choice test to measure students' ability in vocabulary mastery. The researcher made

this test based on the course objectives in the syllabus of first grade of SMAN 1 Campurdarat. Therefore, this test is valid in term of content validity. The content validity in this research can be showed as below:

**Table 3.1 Result of Validity**

No	Competence	Test Item	Percentage
1	Students are able to do multiple choice test of vocabulary mastery	20	5 %

**Item-Total Statistics**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR00001	16,5000	19,912	,464	,936
VAR00002	16,4444	19,791	,609	,933
VAR00003	16,4444	19,673	,652	,932
VAR00004	16,4444	19,791	,609	,933
VAR00005	16,3889	19,663	,922	,930
VAR00006	16,4444	19,673	,652	,932
VAR00007	16,3889	19,663	,922	,930
VAR00008	16,5000	20,029	,428	,937
VAR00009	16,5000	19,794	,500	,935
VAR00010	16,4444	19,791	,609	,933
VAR00011	16,3889	19,663	,922	,930
VAR00012	16,5556	19,438	,537	,935

VAR00013	16,4444	19,791	,609	,933
VAR00014	16,4444	19,673	,652	,932
VAR00015	16,4444	19,203	,826	,929
VAR00016	16,5000	19,324	,646	,933
VAR00017	16,5000	19,324	,646	,933
VAR00018	16,5000	19,206	,683	,932
VAR00019	16,5000	19,441	,609	,933
VAR00020	16,5556	19,203	,603	,934

## 2. Reliability

The reliability of the test is its consistency (Horizon : 1983). Thus, reliability is a measure of accuracy, consistency, dependability or fairness of scores resulting from administration or particular examination. Reliability is necessary characteristic of any good test: for it to be valid all, a test must first be reliable as a measuring instrument (Heaton : 1989). Reliability is concerned with the effect of such random errors of measurement on the consistency of scores (Ary : 2002).

Actually, the ideal test should be both reliable and valid. In this research, the researcher also used SPSS 16.0 for window to know the reliability of test intruments.

The criteria of reliability instrument can be divided into 5 classess as 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

The result of reliability testing by using SPSS 16.0 can be seen from the table:

**Table 3.2 Result of Reliability**

Reliability Statistics	
Cronbach's Alpha	N of Items
,936	20

. To know the items is reliable or not it can be seen from Alpha Cronbach's column. If the Alpha Cronbach's under 0,60 means is not reliable. But if the Alpha Cronbach's upper 0,60 means that it is reliable. Alpha Cronbach's score = 0,936 means that it is very reliable

## **E. Normality and Homogeneity Testing**

### **1. Normality Testing**

Normality tests 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. To know the normality, the researcher used *kolmogorov-smirnov* test with SPSS.16. *Kolmogorov-smirnov* *D* test is a test of normality for large samples.

## 2. Homogeneity Testing

Homogeneity testing is intended to make sure that the collected manipulation data in analysis is truly taken from population which is too different each other. To know the homogeneity, the researcher used Test of Homogeneity of Variances with SPSS.16.

### **F. Technique of Data Collecting**

When we talk about the kind of methods and data, actually it is quite same when we talk about doing evaluation. It has the purpose to get data and then it can be measured by the researcher. The data collecting method is the method to obtain the data in the research. The aim of the data collecting in conducting scientific research was to get material that needed by the research. The researcher collect the data from the students' score of pre-test and post-test. The researcher gave students pre-test to know the students' vocabulary mastery before the researcher give treatment. Researcher give post-test to the students after the researcher giving treatment. The result of pre-test and post-test and then the researcher compare them. The technique of collecting data was clarified as follow:

#### 1. Pre-test

Pre-test was conducted before giving the treatment using TGT technique. There were 20 items of multiple choices questions. The score per item was 5 for correct answer. Students would get 100 point if they could answer correctly to all of the question. Both of the classes, experimental group and control group were given the same test. The purpose of pretest

was to know that the students in both classes have the same intelligent and to know their earlier knowledge before the treatment.

## 2. Post-test

The post-test would be given to the students after being taught and given the treatment. Also, this post-test would be given to both groups, either experimental group or control one. It was aimed to assess their achievement on vocabulary. As like pre-test, post-test also contained of 20 items of multiple choices questions. The score per item was 5 for correct answer.

## G. Techniques of Data Analysis

Data analysis is a time consuming and difficult process, because typically the researcher faces massive amounts of field notes, interview transcripts, reflections, and information from documents to examine and interpret (Ary, 2002:465). The data obtained from research result is the results of student's test that were analyzed quantitatively. Quantitative analysis was done using statistics which is called statistical analysis or inferential statistics. The quantitative data of this research in analyzed using statistical computation. This technique was used to find the significant difference on the students' vocabulary mastery after being taught by using *Team Game Tournament technique*.

The researcher used T-test according to Ary at al (2006:195) with the following formulation:

$$t = \frac{MD}{\sqrt{\frac{\sum D^2 - \frac{(\sum D)^2}{N}}{N(N-1)}}$$

**Where:**

t : the value of  $T_{\text{count}}$

MD : average difference

$\sum D^2$  : different score squared then summed

$(\sum D)^2$  : different score summed then squared

N : number of samples

## H. Hypothesis Testing

The hypothesis of this study was as follow:

1. If T-Test score is bigger than T-table, the alternative hypothesis ( $H_a$ ) is accepted. It means that there is different score to the second grade before using Team Game Tournament technique and after using Team Game Tournament technique. The difference is significant.
2. If T-Test score is smaller than T-table, the null hypothesis ( $H_o$ ) is rejected. It means that there is no different score to the first grade before using Team Game Tournament technique and after using Team Game Tournament technique. The difference is not significant.