Chapter Three

Research Methodology

In chapter three, the researcher focuses on revealing what are the methods of conducting the research in systematic way. Firstly, the researcher decided what kinds of the research which fit with this study. Then, the researcher decided the population and sample for this research. The researcher also explained the instrument, validity, reliability and data analysis.

Research Design

The purpose of this research was to analyze the learners' error on the use of derivation. The researcher used quantitative survey research for this study. Creswell (2012) has given a very concise definition of quantitative research as a type of research that is explaining phenomena by collecting numerical data that are analyzed using mathematically based methods (in particular statistics). The researcher revealed what errors are commonly made by the students in using derivation. It used survey design because the data collection was used the test.

Population and Sample

Population and sample are necessary in a research because they are the objects that are going to be researched. Then, the researcher should provide the population, sample and technique of sampling clearly. Therefore, it is important to describe what population, sample, and sampling in the research.

Population. Population is all subjects of the research that consists of people, animals, things and events. The other definition of population is a group of individuals who have the similar characteristics (Creswell, 2012). The

population of this research is students at English Education department of UMY Batch 2012. The number of the population is 103 students. They are divided into three classes, namely class A (35 students), B (34 students), and C (34 students). There are three reasons of taking batch 2012 as the population of the research. First, they had learned derivation under the subject Capita Selecta on Grammar 3. Second, the students batch 2012 have chance to use language longer. Third, the easiness of accessibility since the researcher is also the student of batch 2012 and know all the students of batch 2012. The researcher did not use the whole population as a research sample directly, but the researcher used representative students for sample.

Sample. Sample is a part of population that is chosen to be respondents. Creswell (2012) defined that sample is a subgroup of the target population that the researcher planned to study for generalizing about the target population. Arikunto (2002) suggested that it is better to take all the population as sample if the population is less than 100, but if the population is over 100, it is allowed to take 10% - 15%, or 20% - 25%, or more. The researcher decided to take 30% of the population and she found 30% out of 103 were 30 students. They consisted both males and females.

Sampling. The sampling method to take this sample was convenience sampling meaning that the researcher involves choosing the nearest person to serve as respondents and stop that process until the required sample size has been fulfilled or it can be spread to whom available and accessible at that time. In this case, the researcher met the students and asked them to be the research

participants. Then, it stopped when the researcher had found it enough as much as sample of the research.

Instruments

The researcher used a test as an instrument of the research. Test is a sequence of questions or exercises used to measure skills, knowledge, ability, intelligence, or talent owned by individual or group (Suharsimi in Haq, 2014). This test consisted of ten types of derivation, namely verb to noun derivation, noun to adjective derivation, adjective to adverb derivation, noun to verb derivation, adjective to noun derivation, verb to adjective derivation, noun to noun derivation, verb to verb derivation, adjective to adjective derivation, and adjective to verb derivation. Each type of derivation has five questions so that the number of the test items is 50 questions (see appendix 2).

Validity and Reliability

Validity and reliability is fundamental in making an instrument. They have important role in determining whether the instrument is appropriate or not. Each kind of instrument of the research has different characteristic and standard. The researcher presented what validity and reliability is and how to validate and rely on the instrument.

Validity. The validity is very important to help the researcher identify whether an instrument is appropriate to use in a research or not. Creswell (2012) stated that validity is the development of sound evidence to demonstrate that the test interpretation (of scores about the concept or construct that the test is assumed to measure) matches its proposed use (p.159). In this research, the researcher used

expert judgment to check the validity of the test. The experts were the two lecturers whose expertise is in linguistics, especially morphology. The validity includes face validity, content validity, concurrent validity, and construct validity. The two experts have approved the instrument so that it could be distributed. The validity aims to measure that the instrument is appropriate with the students' material, their ages, and to ensure that the test item is set clearly.

The researcher has tested the validity to the experts five times. In the first time, the researcher designed the test with cloze test and the experts suggested that test should follow the rule of designing test such as the instruction should be clear, using dot rather than line, and should provide the test distribution sheet. In the second time, they suggested that the test should be in one type of derivation, i.e. suffix –*ion* is only for one question. In the third time, test item should be changed into multiple choices test because the cloze test is too difficult for the students. In the fourth time, the distractors used were not parallel, not in the same idea, and the researcher should provide the choices A, B, C, and D. In the last time, the test should be in the same form, for example positive and positive – negative and negative, the example below has choices *appear, appearance, reappearance* and *disappear*. Disappear has negative meaning then it should be changed to positive form.

i.e. You should care about your (APPEAR) . . . when you go to the interview.
   a. appear
   b. appearance
   c. reappearance
   d. disappear

The researcher changed the test as follow:

You should care about your (APPEAR) . . . when you go to the interview.

a. appear

b. appearance

c. reappearance

d. appearment

The researcher changed the test after five times of judgments and adjusted the experts' suggestion. Then, the distributed test is valid by using expert judgment.

Reliability. Reliability is very important to check the instrument consistency. Creswell (2012) stated that reliability means scores from an instrument are stable and consistent (p.159). The researcher used piloting test to measure the reliability of the instrument. The researcher conducted the data piloting to the students randomly to the students who had learned derivation and they are not in actual research. The researcher spread the test to 31 data piloting participants batch 2014 and 2014 and researcher got 29 tests, one was missing, and the other one was unconfirmed. The test was analyzed through SPSS ver.16 using Cronbach's Alpha method and then it was compared to r_{tabel} with error value 5% or the confidence level 95%. In reliability test, the researcher made hypothesis as follow.

Ho : the test is not consistent. (unreliable)

Ha : the test is consistence. (reliable)

The reliability test is following:

If, $r_{value} \leq r_{table}$, Ho is accepted

If, $r_{value} > r_{table}$, Ho is refused

r_{value} : Alpha

α : 5%

then, 0,458 > 0,3115, Ho is refused

Based on the reliability test above, it means that the test is reliable and it can be used as the research instrument.

Data Analysis

The sequence steps of analyzing data are applied in this research, namely identifying error, describing error, and explaining error. Besides that, the researcher counted the error and calculated them into the most frequent error and the least frequent error. The researcher also analyzed the data using descriptive statistics and used SPSS ver.16 as the tool in analyzing the quantitative data. Sukardi in Maziyah (2014) suggested that the quantitative research should use descriptive statistic. Creswell (2012) stated that:

Descriptive statistics is indicated general tendencies in the data (mean, mode, median, sum), the spread of scores (variance, standard deviation, range), or a comparison on how one score relates to all others (z scores, percentile, rank) (p.182).

Additionally, the researcher used Microsoft Excel to look for the frequencies of errors and converted into percentage. According to Bluman in Kurniasih (2013) the formula of percentage stated as follow:

$$P = \frac{F}{N} \; x \; 100\%$$

P = Percentage F = Frequency of false answer N = Number of sample