

CHAPTER III

RESEARCH METHOD

This chapter tells about the research design, research setting, subject and object research, research instrument, data and sources data, data analysis procedure, and data collection procedure. According to Arikunto (2006, p. 22), research is an activity to study an object using method and rules of scientific methodology to get the data or information in increasing the quality of the problem which are interested and important for research. It means that research well the design should be arranged by researcher before starting this research.

A. Research Design

This research used quantitative approach. It is related to the calculation and analysis of numerical data. The researcher also used descriptive method which refer to the process defining, classifying, categorizing phenomena of interest (Matteo and Festinger, 2005, p. 66). Descriptive method is useful because it can provide important information regarding the average number of a group. Therefore, as quantitative research is essentially about collecting numerical data to explain a particular phenomenon, particular questions seem immediately suited to being answered using quantitative method.

This term, descriptive quantitative is a single instance of some bound system, which can range from one individual to class, a school, or an entire community. Where researcher present the data in numerical and descriptive form. Researcher choose this research because the data is obtained by the researcher based on quantitative data, then the researcher explains the results of the data into

descriptive form. The descriptive design is appropriated with this research since describes English items quality analysis of second semester of grade XII at MAN 3 Banjarmasin in academic year 2017/2018.

B. Research Setting

This research was taken in MAN 3 Banjarmasin which located at Jl. Batu Benawa 1 Number 61, Teluk Dalam, Banjarmasin Tengah, Banjarmasin. The researcher has chosen this place because an English teacher did not analyze the English items second semester exams yet, and the school has a good accreditation. This research is conducted after English test which held on 17th May 2018. On early of February 2018, the researcher asked the permission from the headmaster and the English teacher to analyze the English items test. Then, on 16th July 2018, the researcher brought a research letter to make a copy on students' answer sheet and question sheet of second semester English test. There were 40 English items that the researcher analyzed.

C. Population and Sample

There are six classes of XII grade in MAN 3 Banjarmasin which the total 223 students. The researcher took the data from the XII grade students of MAN 3 Banjarmasin. She took a half of 223 students' answer sheet, then arranged it based on the highest score to the lowest score. For the sample of research, she conducted a purposive sampling technique. She took students' answer sheet in the highest score 27% and 27% in the lowest group. The researcher chose 27% because it is small enough to provide a sufficient data as a base for items statistics (R. Napp: 1971, p.

34). Then, there are 60 students' answer sheet which the researcher took as a sample of this research. It is based on 30 students' answer sheet who have the highest score or upper group and 30 students' answer sheet who have the lowest score or lower group.

D. Research Instruments

The research instrument which researcher used in collecting the data is documentation. These are documentation as follow:

1. Students Answer Sheet

The students answer sheet which students give their respond to English items test in the hardcopy data form.

2. Answer Key

The answer key that researcher used is the answer key based on teacher made.

3. English Items Sheet

The English items sheet that researcher used is the second semester exams English test grade XII of MAN 3 Banjarmasin in academic year 2017/2018. The total number of the items test are 40 questions, all of questions are multiple-choice item.

E. Data and Sources Data

The data in this research is the materials of the English items test in second semester exam grade XII of students' at MAN 3 Banjarmasin. The type of the data in this research is quantitative data. Quantitative data is usually in the form of numbers rather than words. The data was investigated in this research were primary data and secondary data. Primary data is the main data that is used to make the research. The

data such as the students' answer sheet English test and paper of English items test. Meanwhile, the secondary data is supported data to make the research such as general description about headmaster and English teacher. The source data of this research is collected through some sources. Those are as bellows:

a. Respondents

Respondents of this research is all of students of XII grade at MAN 3 Banjarmasin.

b. Informants

Informants of this research are headmaster and English teacher of MAN 3 Banjarmasin.

c. Documents

Documents of this research are English items test paper and students' answer sheet.

F. Data Collection Procedure

The data collection in this research are pre-observation and documentation. The researcher conducted pre-observation at the school to get information about evaluation the English items exam of the school. Documentation is used to obtain data in the form of paper test question, answer keys, and students' answer sheet of English second semester exam grade XII at MAN 3 Banjarmasin.

G. Data Analysis Procedure

Analysis data refers to a process to find out and set systematically the data which have collected from the collecting data process to be easily to understand. Data

analysis procedure of this research on English items by find out validity, reliability, level of difficulty, item discrimination, and distractor efficiency. Each of criteria is calculated using Microsoft Excel program. There are several procedures followed by the researcher in making this research after gather the data:

1. Validity

A test is said to have validity if the results match the criteria, in the sense of having the alignment is a Product Moment correlation technique proposed by Pearson.

$$r_{xy} = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{\{N \sum X^2 - (\sum X)^2\}} \sqrt{\{N \sum Y^2 - (\sum Y)^2\}}}$$

Where:

r_{xy} = Coefficient between X and Y correlation

N = Number of students

$\sum XY$ = Total of multiplication item score

$\sum X$ = Number of items score

$\sum Y$ = Number of total score

$\sum X^2$ = Number score items square

$\sum Y^2$ = Number total score square

2. Reliability

Calculating the reliability using statistical method. Reliability for multiple choice questions can be calculated using the K-R 20 formula as follows:

$$r_{11} = \left(\frac{n}{n-1} \right) \left(\frac{S^2 - \sum pq}{S^2} \right)$$

Where:

r_{11} = reliability of total test

n = Items total

p = Proportion subject who answer correct

q = Proportion subject who answer incorrect

S = Standard deviation

3. Level of Difficulty

Calculating the level of difficulty using statistical method. The formula that use to know level of difficulty as shown:

$$P = \frac{B}{JS}$$

Where:

P = index difficulty

B = the number of pupils who answered the item correctly

JS = the number of pupils who took the test

4. Item Discrimination

Calculating the item discrimination using manual statistical method. The formulation of item discrimination as shown below:

$$D = \frac{B_A}{J_A} - \frac{B_B}{J_B} = P_A - P_B$$

Where:

D = Item Discrimination

J_A = the number of pupil in the upper group

J_B = the number of pupil in the lower group

B_A = the number of pupils who answered the item correctly in the upper group

B_B = the number of pupils who answered the item correctly in the lower group

P_A = the proportion of pupil who answered the item correctly in the upper group

P_B = the proportion of pupil who answered the item correctly in the lower group

5. Distractor Efficiency

Calculating distractor efficiency using statistical method. The formula to find out distractor efficiency as follow:

A discrimination power should be obtained for each option to determine each distractors usefulness. Distractor is wrong choice to deceive the low-ability students. These are work when the distractor minimally were chosen by 5% from all test-taker. To know of distractor efficiency researcher is helped by Microsoft Excel. Then, do interpretation the result with some criteria:

- a. Excellent category if all distractors can be function properly.
- b. Good category if item has 1 distractor malfunction.
- c. Not bad category if item has 2 distractors malfunction.
- d. Poor category if item has 3 distractors malfunction.
- e. Less good category if item has 4 distractors malfunction
- f. Bad category if all distractors malfunction

