CHAPTER III

RESEARCH METHODOLOGY

A. Research Method of the Study

This research is aimed to describe the appropriateness of the multiple-choice items of English test used in the first semester of the first grade students in SMK Klaten. Based on the purpose of the study, the writer used a descriptive method with a quantitative approach in conducting the research.

According to Fraenkel, Wallen, and Hyun (2012, p. 15), descriptive studies describe a given state of affairs as fully and carefully as possible. Kothari (2004, p. 2) states that descriptive research studies portray accurately the characteristics of a particular individual, situation, or group. In conclusion, this study used a descriptive method to collect the data and a quantitative approach for identifying the level of difficulty, the discriminating power, the effectiveness of the distractor.

B. Time and Place of the Study

The research was conducted in 2018/2019 academic year, from November to December 2018. The study was conducted in SMK Klaten which is located in Jl. Mataram No. 5, Belang Wetan, Klaten Utara, Klaten.

C. Subject of the Study

The writer specified the population, sample, and sampling to facilitate and minimize the complication that might happen during this research.

1. Population

Based on Lodico, Spaulding, and Voegtle (2006, p. 140), a population is the wider group of individuals about which the researcher wants to make statements. It is in line with Goddard and Melville (2006, p. 34) who define that a population is any group that is the subject of research interest. In

conclusion, a population is any group of individuals that is the subject of interest.

According to the explanation above, the population of this study was the multiple-choice items and the student's answer sheets on the English test used in the first semester of the first grade students in SMK Klaten which consists of six classes with 216 students.

2. Sample

After determining the population, the researcher was required to obtain a sample to facilitate the procedure of the study. Goddart and Melville (2006, p. 34) define a sample as the subset of the population. Samples must be representative of the population being studied.

According to Fraenkel, Wallen, and Hyun (2011, p. 91), a sample in a research study is the group on which information is obtained.

The sample used in the study was the test items and answer sheets taken from 60 first grade students of SMK N 4 Klaten from class X Akl 1, X Akl 2, and X Akl 3.

3. Sampling

Kothari (2004, p. 152) states that sampling is the process of obtaining information about an entire population by examining only a part of it. According to Dawson (2007, p. 49), sampling is a process of choosing a smaller, more manageable number of people to take part in the research. It is carefully chosen using a correct procedure and it is then possible to generalize the results to the whole of the research population.

This research applied multi-stage random sampling. The following was.the procedure of getting the sample:

a. From the six classes of the first grade students, the writer took three classes randomly i.e. X Akl 1, X Akl 2, and X Akl 3.

b. From the three selected classes, the writer took 20 students randomly for each class.

D. Technique of Collecting Data

The data collection in this study was done by conducting documentation. The document was the files or data of related information including the English test items and students' answer sheets. In collecting data, the writer did an observation by visiting the school to ask for the students' answer sheets and test paper of the English test of the first grade students of SMK Klaten in 2018/2019 academic year to be analysed. In the process of collecting data, the writer used the following steps:

1. Collecting the test items of English final test and the students' answer sheets. In this research, there are 40 test items and 60 students' answer sheets.

2. Arranging all students' answer sheets in the order from the highest score to the lowest score.

E. Technique of Analysing Data

The technique of analysing the data in this study was item analysis. The writer chose the formula of item analysis recommended by Miller, Linn, and Grounlund (2009, pp. 356-358) and was used in the analysis.

1. Computing level of difficulty

The level of difficulty was calculated by using the following formula:

$$P = 100 \, \frac{R}{T}$$

Where:

P = the index of difficulty (the percentage of students who answered the items correctly).

R = the number of students who answered the items correctly.

T = the total number of students taking the test.

Difficulty level of an item was interpreted through the following range:

Table 3.1. Item Difficulty Index

P	Interpretation
Less than 20%	Too difficult
20% - 90%	Good and acceptable
40% - 60%	Excellent
More than 90%	Too easy

2. Computing item discriminating power

Before computing the discriminating power, the students' answer sheets were classified into three groups i.e., lower, middle, and upper. The classification was determined by selecting the top 27% and the bottom 27%. The upper and lower groups were used in the computation, while the middle group was discarded. The formula to compute an index of discriminating power is as follows:

$$D = \frac{RU - RL}{.5T}$$

Where:

D = index of discriminating power.

RU = the number of students in the upper group who answered the items correctly.

RL = the number of students in the lower group who answered the items correctly.

T = the number of students in two groups

Any item showing negative discrimination is highly inadvisable to use again. The index of discriminating power was interpreted as the following table:

Table 3.2. Item Discriminating Index

D	Interpretation
D ≥ 0.40	Satisfactory
0.30 ≤ DI ≤ 0.39	Little or no revision is required
0.20 ≤ DI ≤ 0.29	Marginal and needs revision
DI ≤ 0.19	Eliminated or completely revised

3. Evaluating the effectiveness of distractor

Investigating the responses to an item and the effectiveness of the distractors are needed in multiple-choice item analysis. The item difficulty and discriminating power are the underlying consideration in determining the effectiveness of test item in multiple-choice type. The effectiveness of the test items can be investigated by tabulating and comparing the entire responses of the students in the upper and lower groups. The writer used the following judgements and considerations to evaluate the effectiveness of distractors:

Table 3.3. The effectiveness of distractors

Judgement	Consideration
Functioning as intended (functioning effectively)	- The distractor attracts more students in the lower group than the upper group.
Poor (functioning poorly)	- The distractor attracts more students in the upper group than the lower group.
Not Functioning (functioning ineffectively)	- The distractor doesn't attract any students in the lower group and the upper group. - The distractor attracts the students in lower groups as many as students in the upper group.