CHAPTER III

RESEARCH METHODOLOGY

This chapter presents the method used to collect data of the study. The research methods includes the research design, setting of the study, population and sample, research variable, data collection technique, research instrument and data analysis.

A.   Research Design

Intended, for analyzing the construct validity of the TOEFL-like test of Intensive English Program, the researchers will conduct a quantitative research. Moreover, Sugiyono states that quantitative research is a scientific, empiric, objective, rational, and systematic method. Therefore, research data is derived in the form of numbers and statistic table. It is named quantitive for research data is shaped as numbers[1].

In investigating the construct validity of the TOEFL-like test, the researchers will use an exploratory factor analysis approach. This approach investigates the correlation of each question on each section of the TOEFL-like test. Furthemore, In term of measuring the construct validity of the TOEFL-like test, the researchers will use exploratory factor analysis.

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[1] Sugiyono, *Metode Penelitian Kuantitatif Kualitatif dan R&D*. (Bandung: CV Alfabeta, 2011), 7.

B.   **Population and Sample**

1.   Population

The population of this study is the entire English intensive program's students of UIN Sunan Ampel Surabaya. But the researcher is only able to collecting 336 students' answer sheets from intensive English program lecturers. The TOEFL-like test used in this research is from the intensive English program academic year 2012 – 2013. The reason of using this question sheet because the researcher is not able in getting the students' answer sheets from another academic year.

2.   Sample

In measuring the number of sample in this study, the researcher uses Slovin formula. This formula uses to determining the number of sample from this population. The sample of this study is 183 students, by using Slovin formula. Here is the slovin formula for measuring the sample in this research:

$$n = \frac{N}{1 + Ne^2}$$

$$n = \frac{336}{1 + (336)(0.05)^2}$$

$$n = \frac{336}{1 + 0.84}$$

$$n = \frac{336}{1,84}$$

$$n = 183$$

C.   Research Instrument

According to Suharsimi Arikunto, Research instrument is a useful tool which is choose and use to help the researcher in gathering the data systematically and easily.[2] This research use documentation of TOEFL-like test answers' sheet as the research instrument. The degree of validity of this instrument is indefinite; the validity of this instrument has never been investigated before. Therefore, the result of this research will show the validity degree of both the subject and the instrument of the research.

D.   Research Variable

A variable is a construct or a characteristic that can take on different values or scores.[3] There are two types of research variables: independent and dependent variables. Independent variables are antecedent to dependent variables. *X* represents the independent variable. *Y* represents the measure of the dependent variable. The independent variable is study skills (textbook reading, note-taking, memory, test's preparation, concentration and time management). The second variable is dependent variable; dependent variable which influenced by independent variable (output). The symbol of this variable is Y. The dependent variable of this research is construct validity which is symbolized as X, while the independent variable of this research is TOEFL-like test question's sheet and the students' answers which is symbolized as Y.

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[2]   Suharsimi Arikunto, *Manajemen Penelitian* (Jakarta: Rineka Cipta, 2000), 134.
[3]   Donald Ary, Lucy Cheser Jacobs and Asghar Razavieh. *Introduction to Research in Education*.(USA: Cangage Learning, 2010), 37.

E.   Data Collection Technique

The data may be obtained by administering questionnaires, testing, personal observations, interviews and many other techniques of collecting quantitative and qualitative evidence.[4] In this research, the researcher use documentation review of TOEFL-like test question's and answer's sheets as the data collection technique. There are ten kinds of TOEFL-like test question's sheet booklets, but there is only one observable booklet due to the permission of P2B of UIN Sunan Ampel Surabaya. The question's sheet consists of 140 test items and divides into three sections: listening, structure and reading.

F.   Data Analysis Technique

The data of this research will be examined using an exploratory factor analysis. This analysis technique was used because each question of the TOEFL-like test will be treated one by one. In the exploratory factor analysis model, the variance in each observed variable is explained in terms of the factor leadings on a number of different factors, as in the following equation:

Equation : $z_i = b_1F_1 + b_2F_2 + \ldots\ldots b_nF_n + Ui$, where

z_i is the normal deviate for a variable;

b is the factor loading on a given factor;

F is a factor; and

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[4] Yogesh Kumar Singh, *Fundamental of Research Methodology and Statistics* (New Delhi: New Age International Publisher, 2006), 212.

U is the amount of variation that is unique to a particular variable.

The equation above are used as the basic formula in calculating the exploratory factor analysis, but the researcher will not calculate it manually. The researcher will use SPSS 21.0 in measuring the exploratory factor analysis. The researcher use SPPS because it is the is the best known and widely used tools in doing educational research.[5]

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[5] Donald Ary, Lucy Cheser Jacobs and Asghar Razavieh, *Introduction to Research in Education* (USA: Cangage Learning, 2010), 140.