CHAPTER III

RESEARCH DESIGN

This chapter presents the method which is used for collecting data in this research. This chapter will discuss the research design, including research method and design, population and sample, data collection technique, and data analysis technique.

3.1 Research Design

This research was designed to identify students' responses on the use of Google Classroom at the English Language Education Department of the Islamic University of Indonesia.

This research used quantitative research method based on the aims and needs of the research. According to Creswell (2009), "quantitative research is an approach for testing objective theories by examining the relationship among variables". These variables can be measured, usually on instruments; thus, numbers of data can be analyzed using statistical procedures. Instruments are used to collect data and the information. Based on Arikunto (2006), in quantitative research, according to its name many are required to use numbers, ranging from data collection, interpretation of the data, and appearance of the results. Quantitative research is very strictly applying the principles of objectivity. The objectivity is obtained, among others, through the use of instruments that are tested for validity and reliability.

This research specifically used survey research. Survey research provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population (Creswell, 2009). The purpose of the survey is to explain the characteristics of a population. In essence, what the researcher wants to discover was how members of a population were distributed themselves on a variable or more (for example: age, ethnicity, religion, attitude toward school).

3.2 Population and Sample
3.2.1 Population

This research was conducted at English Language Education Department, Islamic University of Indonesia, batch 2014, 2015, 2016, and 2017. According to Arikunto (2006), population is the overall subject of research. The population in this research consists of 316 students based on the total active students in English Language Education Department, Islamic University of Indonesia. There were 45 students in batch 2014, 72 students in batch 2015, 91 students in batch 2016, and 108 students in batch 2017. The researcher chose students of English Language Education Department UII batch 2014, 2015, 2016, and 2017 because they already had experiences on using Google Classroom.

3.2.2 Sampling

Sample is a part of population which has same characteristics (Arikunto, 2006). The population of this research consisted of 316 students of English Language Education Department batch 2014, 2015, 2016, and 2017. The technique for selecting sample in this research was using probability sampling. It is a sampling technique which provides equal opportunity for each element (member) of the

population to be selected as a sample member. According to Creswell (2009), in probability sampling, representative sample from a population provides the ability to generalize to a population. Probability sampling has four methods namely simple random sampling, proportionate stratified random sampling, disproportionate random sampling and cluster sampling. This research used proportionate stratified random sampling. This method is used when the population has a member/element that is not homogeneous and stratified proportionally. Proportionate stratified random sampling is done by making layers (strata). Then, each layer is taken as a number of subjects randomly. The number of subjects from each layer (strata) is the research sample.

This research used 5% of error rate to set the target sample of the students. Slovins' formula was used to calculate the number of sample from the population. The Slovins' formula shown as followed.

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

Explanation:

n = Number of sample

N = Population

e = Error rate (5% = 0.05)

This research used error rate of 5% to determine the number of sample. It is pretty much impossible to achieve 100% perfect result in every study, as the bigger number of the error rate, the less number the sample sizes. The population was 316 students; therefore, the calculation for the sample shown as followed:

$$n = \frac{316}{1+(316)(0,05^2)}$$

$$n = \frac{316}{1{,}79}$$

n = 176,536 or 177 students.

Therefore, the sample would be 176,536, from 176,536 then rounded to 177; the numbers behind the comma was above 500. Finally, the sample in this research was 177 students.

In order this research used proportionate stratified sampling, it should calculate the strata from batch 2014, 2015, 2016 and 2017. The calculation is as followed.

Table 3.1

The Data Calculation of Proportionate Stratified Sampling

No	Batch	Calculation of Proportionate Stratified Sampling	Result
1	2014	45/316 x 177	25
2	2015	72/316 x 177	40
3	2016	91/316 x 177	50
4	2017	108/316 x 177	61
	Total		**100%**

3.3 Data Collection Techniques

This subchapter explains data collecting techniques, including instrument, validity and reliability.

3.3.1 Instrument

Research instrument is a tool chosen and used by the researcher in conducting its activities to collect the data, so that the activity becomes systematic and easy (Arikunto, 2006). This part explains about instrument that the researcher used to collect data. In this research, the researcher used questionnaire as the instrument to

find the result of the study. Here, students' responses would be measured by questionnaire as the research instrument which was adopted from Shaharanee et.al (2016), with the internet self-efficacy scale that was developed by Eastin & LaRose as reference.

The contents of questionnaire were Ease of Access (6 questions), Perceived Usefulness (7 questions), Communication and Interaction (6 questions), and Students' Satisfaction (4 questions). The answers to each item used a Likert scale. Each item of the questionnaire had level from very positive to very negative. Respondents answered these questions using the following 5-point scale as followed.

Table 3.2

The Likert Scale for Positive Statements

Likert Scale	Score
Strongly agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	1

The higher the number that the students indicate, the more satisfy the students with Google Classroom; thus, the results show that Google Classroom is useful and efficient as an active learning tools.

3.3.2 Validity

Instrument can be valid if the instrument can accurately measure what it wants to measure. In other words, validity is related to "accuracy" with the measuring instrument (Widiyoko, 2012). A scale or measuring instrument can be said to have

a high degree of validity if the instrument performs its measuring function, or provides a measurable result in accordance with the purpose of the measurement. While tests that have low validity will produce data that is not relevant to the purpose of measurement. A valid measuring instrument is not only capable of producing the right data, but also must provide a careful picture of the data. Validation is an important process for researcher to take consideration when he/she selects instrument.

This part explains about how to ensure that instrument of students' responses on the use of Google Classroom is appropriate to serve the purpose of this research. The researcher used 23 items adapted from Shaharanee et.al (2016) as the instrument in this research to find out empirical evidence of students' responses on the use of Google Classroom, in English Language Education Department Islamic university of Indonesia batch 2014, 2015, 2016, and 2017.

To test the validity of constructs can be used by expert judgement. In order to measure the instrument, it used by particular theory after the aspects is constructed, then consulted with experts. Experts are consulted about the instruments that have been compiled. According to Widiyoko (2009), construct validity refers to the extent to which the instrument measures the concept of a theory, which is the basis for the preparation of the instrument. The definition or concept measured comes from the theory used.

3.3.3 Reliability

The test instrument is reliable if it gives consistent result when it is tested many times (Widiyoko, 2012). In the research, reliability is the extent to which the

measurements of a test remain consistent after repetition of the subject and under the same conditions. Research is considered to be reliable when delivering consistent results for similar measurements. However, it is unreliable if repeated measurements give different results. In order to determine the reliability of Shaharanee et.al (2016) questionnaire, Cronbach's Alpha Coefficient was employed to test it. The result shows that the questionnaire is reliable with value above 0.90. Data was analyzed using both descriptive statistics and inferential statistic.

3.4 Data Analysis Technique

The questionnaire used in this research took 23 items of Shaharanee et.al (2016). The first part was designed to collect information of the respondents, such as name, age, gender, and student number. Those are only general personal information for respondents to fill in the questionnaire. This questionnaire presented by circling the number (1, 2, 3, 4 or 5). The variables will be measured in a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

In quantitative research, there are two methods to analyze data (descriptive statistics and inferential statistics). Descriptive statistics are statistics used to analyze data by describing data that has been collected, as it is without intending to make conclusions that apply in general or generalization. While, inferential statistics are statistical techniques used to analyze sample data and the results are applied to the population. In addition, these statistics are well suited to use when samples are drawn from a well-defined population and samples are collected randomly. Sugiyono (2012) stated, generally sampling technique is done by

random, data collection techniques using the instrument of quantitative research methods, quantitative data analysis or statistics aims to test the hypothesis that has been established. This research method has the design of quantitative method because the research data in the form of numbers and data analysis using statistics. The steps in analyzing the data in this study were as followed.

1. Reviewing of online learning, Google Classroom and learning media. Shaharanee et.al (2016) questionnaire were chosen as the instrument.

2. Checking one by one item in questionnaire to make sure that is was easy to understand the meaning.

3. Distributing 23 items questionnaire to 177 English Language Education Department students batch 2014, 2015, 2016, and 2017.

4. After collecting all data, the results are analyzed by using Microsoft Excel application to analyze the data from questionnaire into statistical package.

5. The main findings can be analyzed by looking at the whole average score from the highest to the lowest result. High score indicates that respondents are satisfy with Google Classroom; therefore, it shows that it is useful and efficient as an active learning tools. Low score indicates that respondents are not satisfy and interested to Google Classroom.