Chapter Three

Methodology

This chapter presents the research methodology which consists of research design, population and sample, data collection method, and data analysis. The research design is about the design used in this study. The researcher discusses population and sample of the research, and then data collection method will be explained about how the researcher collects the data. The researcher mentions the validity and reliability of instrument. The last part of this chapter explains data analysis of this study.

Research Design

This study is a quantitative research which focused on gathering the numerical of data and generalizing the data across groups of people. According to Sibanda, (2009), the quantitative research is focused on gathering the numerical data and generalizing it across groups of people. This study used a causal-comparative design. According to Salkind, J (2010) said that a causal-comparative design is a research design taht seeks to find relationships between independent and dependent variables after an action or event has already occurred. The researchers' goal is to determine whether the independent variable affected the outcome, or dependent variable, by comparing two or more groups of individuals. Since the recent study also examine the impact between two variables, which are teachers' behavior and students' academic achievement, causal-comparative research design is suitable for the design of this study.

Research Setting

English Education Department is a place where the researcher conducted the research. There are some reasons to choose this place as a research setting in this study. The first, based on the researcher' experience there are students whose experience related to their teachers makes them demotivated in joining the learning process in the classroom. For example, the teachers come late, do not smile in the class and embarras students in the class. Second, based on the researcher's experience and friends making teachers ' behavior is one of the reasons not to follow the lesson properly, so its might indicate that it affect their academic achievement. The students batch 2015 have studied about teachers' behavior in Teaching English as a Foreign Language and Issues in Language Teaching and Learning class in the sixth semester. In the teachers' syllabus of sixth semester, teachers' behavior have been studied. Students who studied in this university have an experience related to teachers' behavior. The third reason is that the researcher studied at the same University. The accessibility made the researcher easier collecting the data. In addition, the researcher distributes questionnaires to students batch 2015. Then, the researcher collected the data on September 2017. It took the time around two weeks to obtain the data from respondents.

Population and Sample

The researcher chosed the participants of this study before collecting the data. The researcher identified research population to determine research sample as representative of research population. Then, the researcher has determined number of participants using sampling technique which is suitable for this study in order to obtain reliable research data.

Research population According to Sugiyono, (2011) "Population is the area of generalization which consists of an object that has qualities and characteristics are determined by the researcher"(p. 80). The researcher selected students of English Language Education Department batch 2015 with 118 students as the population of this study. According to Arikunto (2010) Population is the total of research subject. Because this study is in English language education field, the researcher also choses the population which is in the same field since they have information that researcher's need. The researcher also chooses students batch 2015 is because they have taken Teaching English as a Foreign Language and Issues in Language Teaching and Learning class at the end of the semester so they have more knowledge about teachers ' behavior that they can determine and evaluate which included in teachers ' behavior. Therefore, the researcher chooses them as the appropriate population of this research.

Research sample. The researcher determines research sample after choosing population of the research. The researcher use total sampling in this research. According to Arikunto (2010), total sampling is sampling the same population. In this research the sample is the entire student batch 2015 consisting of class A: 35 students, class B: 35 students, class C: 23 students, and class D: 25 students. Then the number of overall students batch 2015 is 118 students.

Instruments of the Research

The researcher uses two instruments to collect data of this study. They are questionnaire and document. These instruments became a researcher's tool to obtain data of the research.

Questionnaire. Questionnaire is used as an instrument for collecting the data. A questionnaire is said to be standardized when each respondent is to be exposed to the same questions and the same system of coding responses (Cohen et al, 2011).

Questionnaire here is used as an instrument to measure teachers' behavior as
independent variable to answer the research question number one. This questionnaire
is distributed for respondents of students' batch 2015. The questionnaire is adapted
from Keeley and Buskist on Teacher Behavior Checklist that was conducted in 2006.
The questionnaire consists of 28 statements with some revision and
translation without changing the content of the statement.

The language on the questionnaire is Bahasa Indonesia. Bahasa Indonesia is
the students' and the researcher's first language so it will be easier for the respondents
to understand the statements. In addition, the following table will indicate the scale
used in the questionnaires.

Table 2. *The Scale of Questionnaire*

The teachers' behavior in teaching and learning process

Score	Scale
1	Never
2	Rarely
3	Often
4	Always

(See Appendix A)

Document. Meanwhile, to determine students' academic achievement level
batch 2015, the researcher uses the document on students' grade point average (GPA).
The researcher submits the letter of application to administration department to
request students' GPA. In addition, GPA document used as an indicator to determine
students' academic achievement.

Data Collection Method

The researcher does some steps to collect the data. The researcher begun with asking permission to teachers who teach student batch 2015 for distributing teachers' behavior questionnaire then, the researcher asks permission to entire students batch 2015 to be respondents of this research, afterthat the researcher explains about the purpose for asking respondents to fill out the questionnaire and begun to distribute the questionnaire. After that, the researcher asks the respondents to fill the questionnaires and explain how to fill it. The researcher collected the questionnaire after all respondents complete the questionnaire. The questionnaire will be distributed and the researcher needs to check the validity and reliability trough the SPSS program version 17.0.

In addition, the researcher needs the GPA score from respondents. Before that, for gathering the data between questionnaires and GPA document of respondent. Meanwhile, the researcher obtains the data of students' GPA from academic information after the researcher allowed by the respondents to take data of their GPA. The data privacy of students' GPA are guaranted by the researcher.

Validity and Reliability

Before analyzing data, the researcher checked validity and reliability of the questionnaires as instrument testing. Validity is a part of the instrument to assess what is intended to describe and validity in quantitative research aims to provide the appropriate instrument and data statistical treatments (Cohen, 2011). The researcher involved three expert judgments to analyze validity of questionnaire items. The experts were teachers who master in this research topic. Then, the valid questionnaire items (see Appendix B) were used for collecting data.

Based on the rating from the experts that all the items of the questionnaire, adjusted and approved. Besides giving judgment, the experts also become rater who rate questionnaire items. Then, the score was used to analyze questionnaire item validity using Gregory's formula (Retnawati, 2016). Before checking the validation, the researcher Sets category validation into 2 with valid and invalid value. the valid value was 1 and the invalid value was 0, based on the score from the expert. if the expert rates 1 or 2 which mean the item was invalid, instead if the expert rates 3 or 4 which mean the item was valid, it facilitated the researcher in testing the validity based on Gregory's formula (2006). For the raters' result see (appendix C).

$$Validity\ Coefficient = \frac{H}{(A+B+C+D+E+F+G+H)}$$

Tabel 3. *Category result to calculate Gregory indexs*

Category result to calculate Gregory indexs								
Rater1	Low	Low	Low	Low	Strong	Strong	Strong	Strong
Rater2	Low	Low	Strong	Strong	Low	Low	Strong	Strong
Rater3	Low	Strong	Low	Strong	Low	Strong	Low	Strong
Total	A	B	C	D	E	F	G	H

$$Validity\ Coefficient = \frac{H}{(0+0+0+0+0+0+0+35)}$$

$$Validity\ Coefficient = \frac{35}{(35)} = 1$$

Category result to calculate Gregory indexs							
Rater1	Low	Low	Low	Low	Strong	Strong	Strong	Strong
Rater2	Low	Low	Strong	Strong	Low	Low	Strong	Strong
Rater3	Low	Strong	Low	Strong	Low	Strong	Low	Strong
Total	A	B	C	D	E	F	G	H

The result showed that validity coefficient was 1. Based on validity indicator of Retnawati (2016) (see table 4), value 1 belonged to high validity category (<0.8). Therefore, the questionnaire of this research is high validity.

Table 4	
Category of Validity	
Score	**Category**
>0.8	High Validity
0.4-0.8	Moderate Validity
<0.4	Low Validity

Moreover, Cohen, Manion and Morrison (2011) stated that reliability in quantitative research is as stability, equivalence, and internal consistency of the

instrument. An alternative reliability calculation can be found by using Cronbach's Alpha coefficient. Cohen, Manion and Morrison (2011) stated following guidelines of reliability:

Table 5

Category of Reliability

Score	Category
>0.90	Very Highly Reliable
0.80 – 0.90	Highly Reliable
0.70 – 0.79	Reliable
0.60 – 0.69	Marginally / Minimally Reliabbe
<0.60	Unacceptably Low Reliability

There were 35 items of questionnaire that were distributed to 118 students' batch 2015. The reliability of questionnaire was 0.875 which included in highly reliable category with interval 0.80-0.90.

It means the questionnaire was good to be used. (See Appendix C)The result of questionnaire reliability was shown below:

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.875	.875	27

Table 6 *Result of Reliability Test*

Data Analysis

The researcher analyzed the data to get research' findings after gathering data, the researcher used two techniques in analyzing research data. The first technique was descriptive statistics to describe the level of teachers' behavior and students' academic achievement that answered the first and the second research questions. The second technique was prediction design with regression analysis using anova, regression coeficient, and the value of significance (sig) that used SPSS program version 17 to find the third research question about the impact of teachers' behavior toward students' academic achievement in teaching and learning process.

The first research question about teachers' behavior was analyzed using descriptive statistics. According to Cohen, Manion and Morrison (2011), the researcher will use descriptive statistics to describe and present the data by indicating central tendency (means, modes, medians). Then, the researcher categorized teachers' behavior into three levels using Supranto's (2000) formula. The formula written as follows:

$$c = \frac{Xn - X1}{k}$$

Where:

c = The range prediction (class width, class size, class length)

k = The number of class that researcher wants

Xn = The maximum score of variable

X1 = The minimum score of variable

In detail, the category of teachers' behavior was shown as follows:

Table 7

Category of teachers'

behavior

Scale	Category
90.32 – 103.00	Very Good
72.66 – 90.32	Good
65.00 – 72.66	Bad

Furthermore, the second research question of this research about students'
academic achievement was analyzed using descriptive statistics. The researcher
described students' academic achievement by seeing the mean, and then the
researcher also categorized students' academic achievement into four category based
on the GPA categories of University. There were excelent, good, satisvactory, and
poor categories.

Table 8. *GPA Categories*

Grade Point Avarage (GPA)	Description
3.51 – 4.00	Excelent – Exceptional Achievement (A, A-)
2.76 – 3.50	Good – Extensive Achievement (B+, B, B-)
2.00 – 2.75	Satisfactory - Acceptable Achievement (C+, C)
< 2.00	Poor – Minimal Achievement (D, E, K)

The second analysis technique is using prediction design with regression analysis. Because of this research is using prediction design, the researcher uses ANOVA, regression coefficient, and the value of significance (sig) to find the impact of teachers' behavior toward students' academic achievement in teaching and learning process using SPSS program version. 17. According to Campbell and Sherlock (2008), Regression is a statistical technique to determine the linear relationship between two or more variables. Before it, the researcher tests normality and linearity of the data. Normality test is used whether the participants are from the same proficiency. Moreover, the researcher also tests the linearity of the variables. Test of linearity aims to observe the variables are have a significant linear or not. Based on Campbell and Sherlock (2008) the formula showed below:

$$E(Y \mid x) = \beta 0 + \beta 1 x$$

Where E(), which is read "expected value of", indicates a population mean; Y |x, which is read "Y given x", indicates that we are looking at the possible values of Y when x is restricted to some single value; $\beta 0$, read "beta zero", is the intercept parameter; and $\beta 1$, read "beta one". is the slope parameter. A common term for any parameter or parameter estimate used in an equation for predicting Y from x is coefficient. Often the "1" subscript in $\beta 1$ is replaced by the name of the explanatory variable or some abbreviation of it. To determine if there is the impact of variable x to variable y, the value of significance must be less than the value of probability.