Chapter Three

Research Methodology

The third chapter of this research is research methodology. This chapter presents the research design, research setting, research population and sample, data collecting method, research instruments and data analysis. In this chapter, some theories which support the research methodology are included.

Research Design

To determine which method to use on this research, the researcher re-examines the points of the research question (Creswell, 2012). Based on the research questions of this research, this research aims to find out the correlation between classroom seating position and students' achievement. This means that this research is conducted to find out the relation between classroom seating position and students' achievement. To that end, the researcher chose quantitative method. The reason the researcher used quantitative method was because the data of this research was in forms of numbers, and it used stastical analysis. Cohen, Manion and Morrison (2011) stated that one of the characteristics of quantitative research is large number of numerical data. Second, the researcher wanted to know the trend of classroom seating positions at English Language Education Department at one private university in Yogyakarta, Indonesia. Cohen et al (2011) mentioned that quantitative research describes a research problem through of trends or explains the relationship among variables. It can be concluded that quantitative method is appropiate to this study.

In this research, the researcher used correlational research design in order to find out the correlation among classroom seating position and students' achievement. According to Creswell (2012), correlational is a test to determine the tendency for two or more variables to very consistently. This means that two variables share common variance.

Research Setting

This research was conducted at English Language Education Department at one private university in Yogyakarta, Indonesia. The researcher chose to conduct the research there because based on the reseacher's experience, students were free to determine their seating position based on their preference. Furthermore, the researcher also studies in the same major, so the reseacher had an easier time to collect the data. This research was conducted on May 2018. The researcher needed two weeks to collect the data. After collecting the data, the researcher analyzed the data for one month. This study finished on July 2018.

Population, Sample, and Sampling Technique

Population. This research needed some participants to be analyzed in order to get the result to answer the research questions. Cohen et al (2011) stated that the population is the total involved when the observations take place. The population of this research is batch 2015 at English Language Education Department at one private university in Yogyakarta, Indonesia, which is a total of 118 students, a number given to the researcher by the administration. The reseacher chose the population, because they have lot of experience; they already

know the teachers' characteristic while teaching in class, they also students who are still active in campus.

  Sample. Sample is part of the population. The reseacher determined that the sample of the research depends on the population of the research. According to Cohen et al (2011), sampling is a process of selecting samples from the target population. In this research, the researcher used the probability sample for the quantitative research. Cohen et al (2011) stated that probability sample takes random respondents from the wider population. Through this strategy, it eased the researcher to make generalizations to see representatives of the wider population. For the probability sample, the researcher used random sampling method to take the sample. Cohen et al (2011) explained that each member of the population has an equal chance of being selected under the study. This means they have the same opportunity, and there are no subjective considerations from the researcher such as their age, gender, and economic status. The reseacher used the table from Gunawan (2015) to determine the sampling size, and it is shown below:

Table.1:
Sampe size

Populasi (N)	Sample (n)
90	73
95	76
100	80
110	86
120	92

As a result, according to the table 1, the total population in this research was 118 students meaning that the sample size for 118 were 92 students taken by using the random sampling technique. After the researcher conducted this research, the number of samples obtained 92 students. It means the data was already qualified as a provision in determining the sample size.

Research Instruments

The first aim of this research is to find out students' classroom seating position. The second aim of this research is to find out students' achievement. Lastly, this research aims to find out the correlation between classroom seating position and students' achievement. Based on the purposes of this study, the researcher created a questionnaire for answering the first research question. Cohen et al (2011) argued that closed questionnaire is useful for generate frequencies of response. For the second question, the researcher used grade point average (GPA) of the students as a document to obtain relevant data. The details of two instruments are explained as follows:

Questionnaire. The first instrument used in this research was a questionnaire. According to Cohen et al (2011), questionnaires are widely used, and it is useful instruments for collecting data or information, and it provides a structured and numerical data. The researcher used the questionnaire for answering the first research question regarding students' classroom seating position. The researcher decided to use questionnaire because of four reasons. First, questionnaires can be distributed simultaneously or one time. Second, it can

be made anonymous so the respondent is free, honest, and not shy to answer. Third, it can be distributed without the presence of the researcher. Fourth, the result is consistent since it is in the form of a set of numbers. While in this research the researcher distributed the questionnaire with the researcher's presence. The researcher created the questionnaire that was distributed to the students, and it consists of 21 statements. The reseacher conduct the quesstionnaire into 3 categories, they are the type of position, the reason of choosing the position, and the students' perceived impact of choosing the position.The questionnaire distribution table as follows:

Table .2:		
Questionnaire distribution table		
No.	Category	Item
1.	Types of seating position	1, 7, 13
2.	Reasons of seating position	5, 19
3.	Impact of seating position	2, 3,4,6,8,9,10,11,12, 13,15,16,17,18,20,21
	Total	21

To support the validity and reliability in questionnaire, the researcher do the following stages namely expert judgement. This questionnaire use Bahasa Indonesia in order to ease respondents understand when they filled the questionnaire because the questionnaire use their first language. The questionnaire contained 21 items of the statements. The response of this category used likert

scales which the options were "1=Strongly Disagree", "2=Disagree", "3=Agree", and "4=Strongly Agree".

Document. The second instrument used by the researcher for gathering the data was a document, more specifically the Grade Point Average (GPA) of the students. This document answered the second research question, which is about the students' achievement. This research used the students' GPA, because students' achievement can not be measured by using questionnaire. The GPA itself is the final result of the students' class. The researcher received the GPA document by asking the administration office in the university.

Nature of data. The total questions in the questionnaire item distributed by the researcher were 21 items. The researcher used the scale of data in the questionnaire, and also types of data in ordinal form. The reseracher used ordinal data as the options in the questionnaire. This is in line with Cohen et al (2011) who pointed out that "Ordinal data indicate order" (p. 382). Beside collecting the data using questionnaire, the researcher also use the GPA of the students. The form of the document is nominal data.

Data Gathering Procedure

This section provides information about the procedure, stages, and steps on how the researcher collected the data. In this study, the researcher used self-administration to administer the questionnaire, and the researcher presented to administer the questionnaire. Cohen et al (2011) stated that the presence of the researcher is helpful in retrieving the data for the questionnaire, and the researcher

can check the respondent's answers to make sure there is no empty answer. Furthermore, the researcher can act as a source if there is any respondent who feel confused with the statement in the questionnaire. The questionnaire was in a paper-based form.

Before administering the questionnaire in a class, the researcher asked permission from the lecturer of that class. After getting the permission, the researcher introduced herself and conveyed the the objectives of her visit. Next, the researcher administered the questionnaire to all students one by one start from B class, then C, then A class and the last D class, so there are 4 class that the reseracher take the data and it needs during two weeks. The reseacher also need 15 until 20 minutes to distribute the questionaire. When the respondents filled out the questionnaire given by the researcher, the researcher waited and invited the respondents to ask something if there was any difficulty in filling out the questionnaire. When the respondents completed the questionnaire, the researcher checked the questionnaire so there was no empty answer. The last step, the researcher said thank you to the lecturer and all of the students who participated in filling out the questionnaire.

Validity and Reliability

In this part, the researcher explains the validity and reliability. The researcher also provides some theories from some experts. The explanations are presented as follws:

Validity. Before the researcher distributed the questionnaire, the researcher checked whether the research was conducted validity or not. Cohen et al (2011) explained that the research should be valid, otherwise it is not worth it. Therefore, checking the validity is very important and it is an important point for effective research.

According to Cohen et al (2011), to check the relevance of an item in the questionnaire, expert judgement is always required. Therefore, the researcher chose two experts to check the items of the questionnaire. The questionnaire which was distributed to the expert for content validity is presented below:

Table. 3: *Expert Judgement*						
No	Items	1. Not Relevant	2. Less Relevant	3. Relevant	4. Very Relevant	Comment

After distributing the form, the researcher analyzed and determined which of the items are valid and not. The researcher used the Aiken test to check the validity of the items. If Aiken test results are <0.4, the item is not valid. The Aiken test results show a range between 0.4 to 0.8 or higher, and the items are valid.

Result of validity test. After doing the two kinds of validity test by asking two experts to become the rater of the questionnaire, the researcher found the result of the validity test. The result is shown in the table. 4 below:

Item	V1	V2	V3	s1	s2	s3	SUM	Validity	Category
Table. 4: *Result of Validity Test*									
1.	4	4	4	3	3	3	9	1.00	High
2.	4	4	4	3	3	3	9	1.00	High
3.	4	4	4	3	3	3	9	1.00	High
4.	4	2	4	3	1	3	7	0.78	Medium
5.	4	4	4	3	3	3	9	1.00	High
6.	4	4	4	3	3	3	9	1.00	High
7.	4	4	4	3	3	3	9	1.00	High
8.	4	4	4	3	3	3	9	1.00	High
9.	4	4	4	3	3	3	9	1.00	High
10.	4	2	4	3	1	3	7	0.78	Medium
11.	4	4	4	3	3	3	9	1.00	High
12.	4	3	4	3	2	3	8	0.89	High
13.	4	4	4	3	3	3	9	1.00	High
14.	4	3	4	3	2	3	8	0.89	High
15.	4	3	4	3	2	3	8	0.89	High
16.	4	3	4	3	2	3	8	0.89	High
17.	1	4	4	0	3	3	6	0.67	Medium
18.	4	3	4	3	2	3	8	0.89	High
19.	4	4	4	3	3	3	9	1.00	High
20.	4	4	4	3	3	3	9	1.00	High
21.	4	2	4	3	1	3	7	0.78	Medium

According to the table of the result of validity test, four statements were considered medium validity, and 17 statements were considered high validity. Therefore, all of the questionnaire items were used by the reseacher.

Reliability. The first step to check reliablity is by piloting the questionnaire. The purpose of piloting is to check whether or not the instrument can be used to measure what should be measured. Cohen et al (2011) stated that reliability is a consistency over time, over instrument, and over group of respondents. By checking the reliability, the reseacher can know the accuracy or consistency of a measuring instrument of the same phenomenon in the different times and places. In this research, the reliability of the instrument can be seen through Cronbach's Alpha in Statistical Product and Service Solution (SPSS) program. Cohen et al (2011) stated that to check the reliability the Alpha coefficient is used, and the following guideline which can be used is presented below:

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	Minimally Reliable
<0.60	Low Reliability

According to Cohen et al (2011), the acceptable level of reliability is 0.7 or higher. If the results of data reliability check is lower than 0.7, it means that it

is not reliable. Therefore, the researcher should have a data average of 0.7 or more for reliable data.

Table. 6:	
Result of Reliability	
Cronbach's Alpha	N of Items
0.797	21

The table.6 showed that 21 statements were considered as reliable items since the Cronbach's Alpha is 0.797 and the table was shown above. That means all the items of quesionnaires are reliable to be used by researcher and no item deleted.

Normality Test

The most important step that must be done by the researcher after performing the validity and reliability test is normality test. Normality test is performed before performing deeper data analysis. Thode (2002) claimed that normality test is the most common assumption that is used and made for statistical procedures. Furthermore, through normality test, the researcher can see if the sample data used to approach the normal distribution is biased or not. The researcher used the SPSS 2.2 program and the Kormogolov- Smirnov formula to measure the normality test. The researcher used Kormogolov- Smirnov formula, because this test is suitable to measure the correlation and correspond normal score. Therefore, the respondents must be more than 50 people. Thus, this formula is appropiate to be implemented in this research, because the respondents of this research are 92 peoples. The data is considered normal if the significance is more than 0.05.

Data Analysis

There are two types of data analysis, descriptive statistic and inferential statistic. This research used both descriptive and inferential statistic. First, the researcher used descriptive statistic to answer the first and second research question. According to Cohen et al (2011), "Descriptive statistic is to describe and present the data, for example in terms of summary frequencies" (p. 606). The first step is to input the result of the questionnaire and the document into the SPSS (Statistic Package for Social Science) program. Then, the researcher analyzed the results from both instruments. Next, the researcher converted the results into some categories by using the descriptive statistical analysis. Finally, the researcher determined categories to answer the first research question. There are three categories in this research, and the categories are divided into three steps. The first step is to determined the interval of each category. Rahmawati, Fajarzati, and Fauziah (2013) provided the formula to make the category which is presented below:

$$\text{Interval} = \frac{\text{Maximum value} - \text{Minimum value}}{\text{n Category}}$$

Where:

Maximum value = Maximum score of variable

Minimum value = Minimum score of variable

n category = Number of category

Interval = $\dfrac{4 - 1}{3}$

Interval = 1.00

The result of interval value is 1.00, which means the researcher determined the category into three categories those are the types, reason and impact of choosing the position. The table showed below:

Table. 7: Type of Classroom Seating Position		
Mean	Category	Interpretation
1.00 – 2.00	Back row	It means that the students seat in the back.
2.01 – 3.00	Center row	It means that the students seat in the center row.
3.01 – 4.00	Front row	It means that the students seat in the front row.

Based on table 7 above shows that the range of categories and interpretations of each type of classroom seating position.

Table. 8:
Reason of choosing classroom seating position

Mean	Category	Interpretation
1.00 – 2.00	Low	It means that the reason of choosing the position is low.
2.01 – 3.00	Moderate	It means that the reason of choosing the position is moderate.
3.01 – 4.00	Strong	It means that the reason of choosing the position is strong.

Based on table 8 above shows that the range of categories and interpretations of each reason by choosing classroom seating position.

Table. 9:
Impact of choosing classroom seating position

Mean	Category	Interpretation
1.00 – 2.00	Low	It means that the impact of choosing the position is low.
2.01 – 3.00	Moderate	It means that the impact of choosing the position is moderate.
3.01 – 4.00	High	It means that the impact of choosing the position is high.

Based on table 9 above shows that the range of categories and interpretations of impact of choosing classroom seating position.

To know the result of the second research question, the researcher used the same category. In addition, to determine the category, the researcher used formula based on Rahmawati, Fajarwati, and Fauziah (2013) which is presented below:

$$\text{Interval} = \frac{\text{Maximum value} - \text{Minimum value}}{\text{n Category}}$$

Where:

| Maximum value = Maximum score of GPA |
| Minimum value = Minimum score of GPA |
| n category = Number of category |

$$\text{Interval} = \frac{3.87 - 1.81}{3}$$

$$\text{Interval} = 0.68$$

The interval result is 0.68. After knowing the value of the interval, the researcher determined the category into three categories. The table.10 below shows the categories.

Table.10:
Students' Achievement Category

Mean	Category	Interpretation
1.81 – 2.49	Low	It means that the students have low achievement.
2.50 – 3.18	Moderate	It means that the students achievement is in medium level.
3.19 – 3.87	High	It means that the students achievement is high.

After conducting several categories for research question number two, the researcher can answer the research question number three. To answer the third research question, the researcher used inferential statistics. Cohen et al (2011) stated that inferential statistic is used to make prediction about the hypothesis. The reseacher used Pearson correlation to analyzed the data, and the researcher used Normality test to find out the correlation between two variables. The researcher used inferential statistics to answer the third research question, because it can assume that there is a correlation between classroom seating position and students' achievement. Therefore, inferential statistics is the appropiate way to answer the third research question. In addition, this research analyzed the data results by looking at the Pearson correlation coefficient (r-value) based on the table in SPSS. The hypothesis is accepted if the correlation result is lower than 0.05. Cohen et al (2011) found that "Low or near zero values indicate weak relationships, while those nearer to + 1 or -1 suggest stronger relationship. (p. 635). The coefficient of correlation is interpreted in the table. 11 showed below:

Table. 11:
Correlation Coefficient Interpretation

Standard r x,y	Interpretation
0.00 – 0.20	Very weak correlation
0.21 – 0.35	Weak correlation
0.36 – 0.65	Medium correlation
0.66 – 0.85	Strong correlation
> 0.85	Very strong correlation