

Chapter Three

Methodology

In this chapter, the researcher conveys the design that was used in this study and the reason of choosing the research design. Moreover, population and sample are used by the researcher to decide the participants of this research. For data collection method, the researcher defined how the researcher collected the data. The last part was data analysis, in which the researcher analyzed the data of this study.

Research Design

This study was quantitative research as it proven by the relationship among two variables. The researcher has students' discipline as the independent variable and students' achievement as the dependent variable. In quantitative research the researcher measured the degree of association both the variables to indicate whether those variables are correlated or not. It is in line with Cohen, Manion and Morrison (2011) who stated that the researcher wants to investigate the research problem of the trends and several research problems desire to explain how one variable can correlate the other.

In this study, the researcher investigated the relationship between students' discipline and students' achievement and the researcher has taken correlational research design in this quantitative research. A correlational research design is a procedure in quantitative research to measure the degree of association between two variables or more which is using statistical procedure of correlational analysis (Cohen et al, 2011). In this research, the researcher knew the degree of association between students' discipline and students' achievement in learning process at EED UMY.

Research Setting

English Education Department of Universitas Muhammadiyah Yogyakarta was the place where the researcher conducted the research. There were some reasons to take this place as research setting in this study. First, the relationship between students and teachers in EED of UMY were closed that it raised the misbehaviour regarding the students. Sometimes the students conveyed the argument outside the context for making a joke to the lecturers. Indeed, the degree of politeness of students' utterances to the teachers was decreased. The second reason was that the students ignored the instruction from the lecturer while in a learning process. It was because the researcher witnessed students related to indiscipline. They tend to forget the learning contract that was approved in the beginning of class.

In addition, the researcher completed this study in November 2017. The first week of November was used by the researcher to obtain the data. The first step in collecting data, the researcher asked permission to the lecturers to distribute the questionnaire in classroom. After that, the respondents were explained the topic of this study and the questionnaires by the researcher in order to avoid misunderstanding. In this research, the researcher distributed the questionnaire only to 153 students batch 2014 and 2015. It happened because the accessibility and feasibility of students. The last three weeks of November were used by the researcher to analyze the data and reported the data results.

Research Population and Sample

Before collecting the data, the researcher decided the respondents of this research. Afterwards, the researcher needed to observe the research population for choosing the research sample that was used by the researcher. In order to attain the amount of respondents, the researcher used sampling technique that was appropriate with this study.

Research Population. For the population of this study, the researcher took the data from students of English Education Department of Universitas Muhammadiyah Yogyakarta. According to Creswell (2012), said that population is a bunch of individual who has equal characteristic. This study was in English education field, so that the researcher determined the population which have the same characters in educational field . The researcher took respondents 2014 and 2015 from EED of UMY students. The researcher used the batch 2014 and 2015 because the researcher wanted to get the large size of the sample. Moreover, the respondents were satisfy in academic achievement that reseacher needed. However, students batch 2016 were excluded because they were still have two semesters in this university, so they have a lot of subjects that need to be taken. In addition, the researcher needed Grade Point Average (GPA) from those respondents. It was used to obtain data which was gaining the dependent variable of this research. Students batch 2013 were excluded because they were not active students at EED of UMY, and many of them would be graduated from this university this year. The researcher used 270 students as the population of this research which were obtained from students of EED of UMY batch 2014 and 2015.

Research Sample. The reseacher conducted sampling technique to select the respondents after deciding the population. The respondents were selected to be the samples of this study. Arikunto (2010) stated that sample means deputation of research population. In this research, the researcher used random sampling to obtain the respondents of this study among students at EED of UMY batch 2014 and 2015. The researcher did sampling by radomizing eight classes batch 2014 and 2015. The researcher decided to take five class to get the minimum sample which was obtained 153 respondents. The classes that researcher took were class A, B, C batch 2015 and A, C batch 2014. The reason why researcher choosed random sampling was because population having equal chance to be selected as the respondents (Cohen, Manion and Morrison 2011). This sampling represents probability

sampling to be conducted in quantitative research. Referring to (Cohen, et al 2011) random sampling “ involves selecting at random from list of population (a sampling frame) the required numbers of subjects for sample” (p.155-156).

The total of the sample can be taken from the slovin's formula. Slovin's formula here to decide sample from population which is written as $n = N / (1 + Ne^2)$ n = Number of samples, N= Total of population and e = Error tolerance equal to 5%. In this research, the total population was 210. After that, the researcher got the minimum sample size was 173 respondents trough the slovin's formula. The calculation was showed below :

$$n = 210 / (1 + 210 * 0.05^2)$$

$$n = 210 / (1 + 0.525)$$

$$n = 210 / 1.525$$

$$n = 137$$

Research Instruments

The instruments was used to get data of this research. Questionnaire is used as an instrument for collecting the data and Providing structured and it can be done without the presence of the researcher (Cohen et al, 2011). Questionnaire here was used as an instrument to measure students's discipline as independent variable. This questionnaire was disseminated for respondents from English Education of Universitas Muhammadiyah Yogyakarta batch 2014 and 2015. For measuring the discipline, the researcher used students' discipline score.

The researcher made one language statements in this questionnaire. The language of the questionnaire was in *Bahasa Indonesia*. The researcher used *Bahasa Indonesia* in order to ease the respondents in understanding the statements. However, the researcher used *Bahasa*

Indonesia due to the respondents use *Bahasa Indonesia* as the first language. Besides, the researcher used *Bahasa Indonesia* as the statement of questionnaire, this language was very useful to minimize invalid data.

The researcher developed the instrument of the questionnaires. The references that researcher used to develop the questionnaire was based on Rachel (2013) Discipline, learning skill and Academic achievement and the researcher developed used the learning contract of the lecturer for enhancing the items. The factors that researcher used in this questionnaires were time management, rules and regulation and ethic toward students and lecturers. The questionnaires items related to time management were 7 items. Those items were Q1, Q2, Q3, Q4, Q5, Q6, Q7. For the rules and regulation consisted of 8 items. These items belonged to Q8, Q9, Q10, Q11, Q12, Q13, Q14, Q15. In addition, there were 7 items that was developed from ethic toward students and lecturers factor. Items number Q16, Q17, Q18, Q19, Q20, Q21, Q22 were included to ethic toward students and lecturers topic. Therefore, the questionnaires consisted of 22 items.

Table 1			
<i>The detail of Questionnaires Items</i>			
Statements	Description	Statements	Description
Q1	To measure time management	Q12	To measure rules and regulations
Q2	To measure time management	Q13	To measure rules and regulations

Q3	To measure time management	Q14	To measure rules and regulations
Q4	To measure time management	Q15	To measure rules and regulations
Q5	To measure time management	Q16	To measure ethic toward students and lecturers
Q6	To measure time management	Q17	To measure ethic toward students and lecturers
Q7	To measure time management	Q18	To measure ethic toward students and lecturers
Q8	To measure rules and regulations	Q19	To measure ethic toward students and lecturers
Q9	To measure rules and regulations	Q20	To measure ethic toward students and lecturers
Q10	To measure rules and regulations	Q21	To measure ethic toward students and lecturers
Q11	To measure rules and regulations	Q22	To measure ethic toward students and lecturers

Afterwards, researcher decided to use four likert point of scale for each item questionnaire which was written as : N (Never), R (Rarely), O (Often), A (Always). This

following table explains the scale of the questionnaire from never to always scale. The scale of questionnaire was exposed below (Cohen et al, 2011).

Table 2	
<i>Favorable items scoring</i>	
The Scale of Questionnaire	
The Student's discipline in Learning Process at EED UMY	
Score	Scale
1	Never
2	Rarely
3	Often
4	Always

Meanwhile, researcher needed GPA from students to be analyzed for knowing student' achievement. Indeed, data of students' GPA was obtained in academic information at EED of UMY. Before that, researcher asked permission to the lecturer first. Meanwhile, students was also attached their GPA on the questionnaire, and this data information of respondents were protected by the researcher. The range score of the students' GPA divided into 3 criteria. The first level of GPA between 2.00-2.75 indicates that the score is satisfactory. The second level of GPA between 2.76-3.50 shows that the score is good. Then, the last level is very good if the score has 3.51-4.00.

Data Collection Procedure.

In this study, the researcher needed the GPA from respondents. Before that, for gathering the data questionnaires of respondents, the researcher asked permission to the lecturer and respondents in the classroom. The researcher also asked to the respondents to give inform of agreement by putting the signature. The students' agreement is needed by the researcher to make sure that they were willing to give their information. The researcher distributed the questionnaires to the students of EED of UMY batch 2014 and 2015. Meanwhile, the researcher obtained the data of students' GPA from academic information at EED of UMY. In addition, the researcher asked to the Head of English Education Department to obtain the data of students' GPA. The data privacies of students' GPA were guaranteed by the researcher.

Validity and Reliability

The researcher had to checked the questionnaire's validity and realibility to make sure the questionnaire is valid and reliable. The researcher checked the validity by having expert judgements and testing through spss version 17.0. In realiabiliy testing, the researcher checked the realibility through spss version 17.0. In order to prove the data, the researcher has to checked the validity first then reliability. According Cohen et al, (2011, p. 179) argued that "...validity were based on the view that is was essentially a demonstration that a particular in fact measures what it purports to measure, or that an account accurately represents 'those rise'". Furthermore, the researcher should check items after doing validity test. It means to measure the consistency of instrument.

Instrument Validity

For checking the instrument validity, the researcher involved three expert judgements to assess the validity of questionnaires items. Three expert judgements were chosen by the researcher from the lecturers of English Education Department of Universitas

Muhammadiyah Yogyakarta who were capable in this research. Moreover, the researcher used the valid items for collecting the data from respondents.

The first expert judgement suggested to switch one item in order to make more appropriate statement. The second expert judgement also suggested several words to be replaced such as number 1,2,7,8,13 and 13. After that, the second expert judgement suggested adding some words to make easier in understanding by respondents. Then the third expert judgement suggested for replacing words number 3,6,12,13,18 and 21.

Meanwhile, the expert judgements also gave the rate for each item in questionnaire. The expert judgements were scoring the items of questionnaire to be analyzed to determine the validity by using Gregory' formula (Retnawati, 2016). Aiken's V formula is defined as follows :

$$V = \frac{\sum s}{n(c - 1)}$$

The s value were obtained from the score rating 9 (*r*) that was given by expert judgement reduce the score assigned to the lowest validity category (**10**). Meanwhile, the **n** the people who constructed and measured the items. The c was the score assigned of highest category validity.

The table below showed that the validity coefficient from Retnawati (2016).

Table 3	
<i>Category of Validity</i>	
Score	Category
<0.4	Low Validity

0.4-0.8	Moderate Validity
>0.8	High Validity

The table above showed the validity indicator based on Retnawati (2016) that the categories were decided into three level. The first, value of validity is low when the V value is lower than 0.4. The second, value of validity is moderate when the V value was on 0.4-0.8. The third, the validity is high if the score belongs to > 0.8.

Table 4									
<i>The result of Aiken coefficient for Students' Discipline</i>									
Item	Rater 1	Rater 2	Rater 3	S 1	S 2	S3	Σs	V	Description
1	4	2	4	3	1	3	7	0.78	Moderate Validity
2	4	3	4	3	2	3	8	0.88	High Validity
3	4	2	3	3	2	2	7	0.78	Moderate Validity
4	4	3	4	3	2	3	8	0.88	High Validity
5	4	3	4	3	2	3	8	0.88	High Validity

6	3	3	2	2	2	1	5	0.58	Moderate Validity
7	4	3	4	3	2	3	8	0.88	High Validity
8	4	3	4	3	2	3	8	0.88	High Validity
9	4	3	4	3	2	3	8	0.88	High Validity
10	4	3	4	3	2	3	8	0.88	High Validity
11	4	4	4	3	3	3	9	1.00	High Validity
12	4	3	2	3	2	1	6	0.68	Moderate Validity
13	4	3	2	3	2	1	6	0.68	Moderate Validity
14	4	3	4	3	2	3	8	0.68	Moderate Validity
15	3	4	4	2	3	3	8	0.88	High Validity

16	4	4	4	3	3	3	9	1.00	High Validity
17	4	3	4	3	2	3	8	0.88	High Validity
18	4	4	2	3	3	1	7	0.78	Moderate Validity
19	4	3	4	3	2	3	8	0.88	High Validity
20	4	3	4	3	2	3	8	0.88	High Validity
21	4	2	4	3	1	3	7	0.78	Moderate Validity
22	4	3	4	3	2	3	8	0.88	High Validity

The result of this questionnaire items was on moderate and high validity. The items number 1, 3, 6, 12, 13, 14, 18, 21 were moderate validity and the items number 2, 4, 5, 7, 8, 9, 10, 15, 16, 17, 19, 20, 22 indicated that the items have high validity. Therefore, all of the questionnaires items were valid and the questionnaires could be distributed.

In Addition, the researcher revised the questionnaire from the expert judgement suggestion. The experts' scoring items were calculated by the formula of Aiken. For the category experts' rating can be seen on appendix.

Instrument Reliability

After the researcher checks the validity. The next step is Reliability. In this instrument reliability, the researcher used reliability test from SPSS version 17.0 for Microsoft Windows. To know the reliability of each questionnaire item, the researcher measured the instrument by Cronbach's alpha (α) in SPSS version 17.0. The validity value of the instrument is determined by the Cronbach's Alpha based on standardized. Sekaran (2000) categorized the following criteria of reliability into three levels:

Table 5 <i>Category of Reliability</i>	
Score	Category
0,8-1,0	Good
0,6-0,799	Moderate
< 0,6	Not Good

The researcher distributed the questionnaire to 153 respondents EED of UMY batch 2014 and 2015 and the questionnaire consisted of 22 items. After the researcher checked the questionnaire reliability in SPSS version 17.0, there were 6 items that were deleted because those items were unreliable.

The result of this questionnaire was .863. This value showed that this questionnaire was good category reliability with interval 0.8-1.0. The result of the reliability can be seen as follows.

Table 6 <i>Result of Reliability Test</i>
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Cronbach's Alpha	N of Items
.863	16

Table 7

The Result of Reability Per- Items

Item	Crobach' Alpha if Item Deleted	Item	Crobach' Alpha if Item Deleted
Q1	0.862	Q12	0.865
Q2	0.848	Q13	0.862
Q3	0.866	Q14	0.866
Q4	0.854	Q15	0.869
Q5	0.848	Q16	0.864
Q6	0.854	Q17	0.849
Q7	0.850	Q18	0.861
Q8	0.855	Q19	0.855
Q9	0.852	Q20	0.854
Q10	0.858	Q21	0.863
Q11	0.854	Q22	0.865

The total items of this questionnaires were 22 items. After the researcher analyzed by crobach's alpha test, the researcher found 6 items of questionnaires which were unreliable.

Data Analysis

To get the research' finding, the researcher analyzed the data first. There are two tecniques for answering these research questions of this study. The first tecnique to analyze the data was descriptive statistics which answers the first and second question related to the students' discipline and students' achievement in learning process. The second tecnique to analyze the data was inferential statistics using Pearson Product Moment (r) to answer the third question about the correlation between student's discipline and student's achievement.

To answer the first and second questions, the researcher used descriptive statistics tecnique. It answered the student's discipline and student's achievement in learning process. Reffering to Cohen et al, (2011) stated that descriptive statistics is measuring the frequencies, deployment, and central of tendency. Indeed, the researcher identified how the student's discipline was.

Meanwhile, the researcher answered the second research question by using students' GPA. The students' GPA was obtained from academic information in EED of UMY. After that, the researcher will categorize the students' discipline by using Supranto's formula. The formula was writen below:

$$C = \frac{X_n - x_1}{k}$$

Where:

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

k = the number of class that the researcher wants

X_n = the maximum score of variable

X 1 = the minimum score of variable

In this study, the maximum score of students' discipline was 64.00 and the minimum score of students' discipline was 34.00. Then, the researcher calculated the category using Supranto' formula. The calculation was showed below:

$$C = \frac{64 - 34}{3}$$

$$C = \frac{30}{3}$$

$$C = 10$$

The detail category of students' discipline was shown as follows:

Table 8 <i>Category of Students' Discipline</i>	
Scale	Description
54.0 – 64.0	High
44.0 – 54.0	Moderate
34.0 – 44.0	Low

The researcher used 3 categories, so the researcher can breakdown into Low, Moderate, and High Category.

Futhermore, to categorize the student's achievement, the researcher used GPA' students. The researcher used descriptive statistics also to analyze the second question about the students' academic achievement. The resercher categorized the level based on Supranto's formula

In this study, the maximum score of students' academic achievement was 3.95 and the minimum score of students' discipline was 1.08. Then, the researcher calculated the category using Supranto' formula. The calculation was showed below:

$$C = \frac{3.95 - 1.08}{3}$$

$$C = \frac{2.87}{3}$$

$$C = 0.957$$

Table 9 <i>Category of Students' Academic Achievement</i>	
Scale	Description
2.99 – 3.95	High
2.03 – 2.99	Moderate
1.08 – 2.03	Low

The inferential statistics technique was used to reveal the third question. This study was correlational design, so the researcher correlated the student's discipline and student's achievement variable by using SPSS version 17.0. Futhermore, before checking the inferential statistics, the researcher examined normality of the data. Normality test used to know whether the deployment of the data was normal or not.

The standard guidelines to measure the strength and weakness can be looked as follows (Creswell, 2012).

Table 10

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Correlation Score Table

Coefficient of Correlation (r)	Degree
0.20 – 0.35	Weak
0.36 – 0.65	Moderate
0.66 – 0.85	High
0.86 <i>and above</i>	Very High