Chapter Three

Methodology

This chapter discusses about the methodology of this research. In this chapter would discuss about the research design that used by the researcher would be discussed. The second point would be discussed is the population and sample of this research. The third point is would discussing about the instrument that use to gathering the data. The last point is discussing about the data analysis of this research.

Research Design

To answer the research questions of this research, researcher use quantitative research. According to Creswell (2012) "research designs are the specific procedures involved in the research process: data collection, data analysis, and report writing. The research that was conducted was quantitative research" (p.20).When researcher wants to choose the research going to be quantitative or qualitative, it must be based on research problems. According to Creswell (2012), "based on the nature of the research problem and the questions that would be asked to address the problem the researcher chooses either the quantitative or qualitative" (p.11).Quantitative research was more suitable for this research because this research investigated about the correlation of two variables or more. Quantitative research has purpose to test objective theories by measuring relationship between variables (Creswell, 2009).

Correlational design is one of the procedures in quantitative research where the researcher measure the degree of relationship between two or more variables using statistical procedure of the correlational procedure (Creswell, 2012). Correlational study is to find out the existence of a relationship between two or more aspects of the research (Kumar, 2011). According to Creswell (2012), "a correlation is a statistical test to determine the tendency or pattern for two (or more) variables or two sets of data to vary consistently" (p.338). Based on the research questions of this research, this research has purpose to know about the correlation between punishment and students' learning motivation. Therefore, this research wants know about the relation between the two variables.

There are two types of correlational research, explanatory and prediction design. Explanatory design is a correlational research where the researcher identify two or more variable and changes in one variable are reflecting change in other variable. Besides, prediction design is a correlational research where the researcher indentify variable that predicted would give outcome (Rahmawati, 2015). Creswell (2012) proposes that there are some specific characteristics of correlational research design, such as: "(a) display the scores, (b) associations between scores, (c) multiple variable analysis" (p.342). It is because this research only to find out the relation of two variables, so this research using Explanatory Correlation Design.

In quantitative research design there is hypothesis, Ha. Hypothesis are statements in quantitative research in which the researcher makes a prediction about the result of a relationship among variables (Creswell, 2012). At the last, the result of

research question number three would answer the hypothesis may be accepted or rejected. This research also focused on collecting numeric data from a population by using some instruments for collecting the data and that is actually also one of the characteristics of quantitative research. This research is using a correlational design because it would help the researcher to find out the correlation between punishment and students' learning motivation at English Education Department batch 2014 of Universitas Muhammadiyah Yogyakarta.

Setting and Participants of the Study

Setting. The researcher chose English Education Department of Universitas Muhammadiyah Yogyakarta as the setting to conduct this research. In English Education Department of Universitas Muhammadiyah Yogyakarta, punishment method is also applied in teaching learning process. Based on researcher's experiences, there are some teachers who implement punishment method with the aim to manage students' behavior and developing students' motivation in learning process. However, the study which investigated about the correlation between punishment and students' learning motivation had not been conducted at English Education Department of Universitas Muhammadiyah Yogyakarta as the setting to conduct this research. Therefore, the consideration in selecting EED UMY as the setting of this research is suitable with the aim of this research.

Population and sample

Population. According to Sugiyono (2011), population is generalization which consist object that have particular characteristic determined by researcher to be investigated. The researcher select students of EED UMY batch 2014 to be the population of this research. The population of this research is 119 students. The reasons for choosing batch 2014 as the participants of this research that students of EED UMY batch 2014 is the most senior who also assumed to be more experience about teaching and learning process in EED UMY. The students of EED UMY batch 2014 also have more experiences about punishment which was implemented by teacher. Therefore, based on researcher's consideration, students of EED UMY batch 2014 are very suitable as the population in this research.

Sample. According to Kumar (2011), "sample is a subgroup of population which focus on the research enquiry" (p.346). In this research, researcher uses random sampling. According to (Creswell, 2009) the participant might be selected randomly by researcher because it naturally formed group such as a classroom and the sample could be generalized to be larger population. This research use 94 students as sample. According to (Rahmawati, 2015), for the population of 119, the sample size with confident level of 95 % is 91. The researcher choose the participants to investigate about the correlation between punishment and motivation in EED UMY.

Data Collection

Data collection has purpose to get reliable data. Data collection method that used in this research is questionnaire. According to Creswell (2012), "questionnaire is a form that used in a survey design that participants in a study complete and return to the researcher" (p.328). The participants would fill the questions in the form based on their personal information (Creswell, 2012).In this research, researcher uses Likert 4 scales include strongly agree, agree, disagree, strongly disagree. The respondents of this research would fill questionnaires by choosing the scales that suit them.

The researcher have two questionnaires for this research, the first questionnaire for collecting data of punishment and the second questionnaire for collecting data of students' learning motivation. To collect the data, researcher develops twenty one questions for punishments questionnaire and adapting twenty four questions about motivation from Clement (1994). When filling the questionnaires, students fill it based on their own belief and participants' information would be secret. The data which have been collected would be processed using SPSS.

Instrument of the Study

Before measuring, researcher needs instruments to measure the variables of this research. Instrument is a tool for measuring and observing in quantitative data. Instruments include a test, questionnaires, tally sheet, observation checklist or inventory (Creswell, 2012). Instrument contains important questions and participants'

response possibility needed in the research. In this research, researcher finished the data collection of this research by asking participants to complete questions in questionnaires.

To support the questionnaires collecting important information, researcher had adapted twenty four questions for motivation questionnaire in this research according to Clement (1994). Clement's research title is "Motivation, self-confidence and group cohesion in the foreign language classroom. Language Learning". The reason why researcher adapted questionnaire from Clement because the items of this questionnaire have a well proportion number. Another reason is because questionnaire of Clement appropriate with the research question number two of this research about students' learning motivation.

For punishment questionnaire, researcher creates twenty one questions. Before researcher spread the real questionnaires, researcher would do pilot testing on few students of EED UMY batch 2014. Pilot testing is one of the procedure in quantitative when a researcher makes change in questionnaires based on some participants' feedbacks who have complete the questionnaires (Creswell, 2012). Therefore, researcher would do piloting to get the reliability items and researcher revise the questionnaires which have unclear questions or responses have probability to be bias. To measure validity of questionnaires, researcher have to use expert judgment. It meant that the researcher asking for some expert's opinion such as lectures.

Because of this research using quantitative, so the answers of questionnaires would be scored using linier scales which have four options in the questionnaires motivation, there are:

a. *Sangat Setuju (SS)* → Strongly Agree

b. *Setuju (S)* → Agree

c. *Tidak Setuju (TS)* → Disagree

d. *Sangat Tidak Setuju (STS)* → Strongly Disagree

Scores for each answers category, there are:

Answer categories	**SS**	**S**	**TS**	**STS**
Positive (+)	4	3	2	1
Negative (-)	1	2	3	4

Table 3.1 Scores for each answer categories (motivation)

The answers of the second questionnaires would be scored using linier scales which have five options in the questionnaires punishment, there are:

a. *Sering (S)* → Often

b. *Kdang – Kadang (KK)* → Sometimes

c. *Jarang (J)* → Seldom

d. *Tidak Pernah (TP)* → Never

Scores for each answers category, there are:

Answer categories	**S**	**KK**	**J**	**TP**
Positive (+)	4	3	2	1
Negative (-)	1	2	3	4

Table 3.2 Scores for each answer categories (punishment)

Validity. Creswell (2012) propose "validity is the development of sound evidence to demonstrate that the test interpretation matches its proposed use" (p.159). Validity could be seen as the larger, more encompassing term when the researcher assesses the choice of an instrument. Additionally, when the scores of the instrument are more reliable, so the scores are more valid but, the scores probably still not measure the particular construct and the scores of the instrument may invalid (Creswell, 2012). According to Kothari (2004), "validity is the extent to which differences found with a measuring instrument reflect true differences among those being tested."(p.74). To measure validity of questionnaires, researcher have to use expert judgment. It meant that the researcher asked for experts' opinion on the validity of the questionnaire items. The questionnaires of this research needed expert judgment from two lectures in EED UMY. After researcher submitting the questionnaires to lectures, the lectures return the questionnaire to researcher. The lectures gave corrections and suggestions in questionnaire sheets. After receiving the feedback, researcher was revising the questionnaires and submitting back to lectures. After researcher got the final scores from the experts, researcher could calculate the

validity of the items using Aiken validity test. To know the agreement, researcher could use validity index which suggested by Aiken in Retnawati (2016). The formula of Aiken could be seen in below:

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

With $s = r - I_0$

Information :

V : the index of validity items

s : the difference between scores which have been set by raters (r) and the lowest score in rating (I_0)

n : total rater

c : the highest score

Based on calculation index Aiken V, researcher gets the result that from 25 items of motivation questionnaire, there is 24 valid and item number 3 is invalid. The invalid item should be deleted from the questionnaire. The average of the motivation questionnaire is 0.84, which meant that validity of the questionnaire very high. In punishment questionnaire, all the items were valid. The total average of the punishment item is 0.92, which meant that the validity of the questionnaire was very high.

Reliability. In this research, researcher analyzing the reliability of the questionnaires. Based on Cresswell (2012), “Reliability means that scores from the

questionnaire are stable and consistent and the scores should be same when researchers administer the instrument multiple times at different times." (p.159). Reliability commonly make researcher's understanding easier as it is a measure of consistency. If scores of the data are not reliable, it meant that they are not valid. The researcher has to make the scores become stable and consistent first. Reliable measuring scores of the instrument which contribute to validity, but a reliable instrument is not always need to be a valid instrument (Kothari, 2004).

Reliability Statistics

Cronbach's Alpha	N of Items
.842	45

Table 3.3 Reliability table

To know the reliability of this research, researcher use Cronbach's Alpha value. Based on the table above, researcher found the cronbach's alpha of the instrument was 0.842 > 0.05, it meant that the item of punishment was valid.

Data Analysis

The analysis started with coding the data which had been collected and researcher transfers the data from the instruments into an excel. After the data have been transferred into computer, researcher calculates the statistic is significant based on the scores (Rahmawati, 2015). According to Kaul in Pandey (2015), "data analysis is studying the organized material in order to discover inherent facts. The data are

studied from as many angles as possible to explore the new facts." (p.70). Therefore, data analysis is very important in study in order to find out answers of the data.

This research has two variables, punishments and students' learning motivation. There are two types of data analysis, the first is descriptive statistic, and the second is inferential statistic. The descriptive statistic is used to answer the research question number one about the punishment implemented in EED UMY batch 2014 and the second research question is about how is students' learning motivation in EED UMY batch 2014. According to Kumar (2011), "descriptive statistical procedures such as the mean, the mode, the median, the chi-square test, the *t*-test and the coefficient of correlation" (p.270). According to Kothari (2004), "descriptive statistics concern the development of certain indices from the raw data, where the inferential statistics concern with the process of generalization" (p.131). Inferential statistics are focusing on two type of problems include estimating the parameters of population, and testing the statistical hypotheses (Kothari, 2004).

To answer the third research question, this research is used the inferential statistic. According to Creswell (2012), "inferential statistical tests used to examine the hypotheses in the study". The third research question could be answered by using the inferential statistic. The third research question has hypothesis, H1. H1 mean that there is correlation between punishment and students learning motivation. At the last, the answer of research question number three would be whether or not there is correlation between punishment and students' learning motivation. Therefore, the

inferential statistic is a suitable way to analyze the data in order to answer the third research question.

The interval of punishment was classified in three levels, there are rare, sometimes and often. The interval of punishment could be seen in table below:

Interval	The level of punishment
3.1 – 4	Often
2.1 – 3	Sometimes
1 – 2	Seldom

Table 3.4 Interval of punishment level

The researcher also classified the interval of motivation into four levels. The levels of motivation could be classified as strongly agree, agree, disagree and strongly disagree. For the detail, the interval of motivation could be seen in table 3.6 below:

Interval	The level of motivation
3.3 – 4	Very high
2.6 – 3.2	High
1.8 – 2.5	Moderate
1 – 1.7	Low

Table 3.5 Interval of motivation level

Based on Creswell (2013), some procedures involved in data analysis, are: Step 1. Researcher would report information about the number of participants who did and did not return the questionnaire.

Step 2. Researcher would discuss the method by which response bias would be determined.

Step 3. Researcher would discuss the plan to provide a descriptive analysis of data for all independent and dependent variables in the study.

Step 4. Researcher assuming that what researcher process is descriptive approaches, if these research contains questionnaires with scales and identify the statistical procedure for accomplishing the research.

Step 5. In this step, researcher would identify the statistics and the statistical computer program for testing the major inferential research questions or hypotheses in the proposed study.

Step 6. The last step in data analysis is researcher present the final results in tables and interpret these results from statistical test.

In this research, these steps are designed by Creswell and this step would be used by researcher for data analysis of this research.

Normality test. Normality test have purpose to know that a data distribution is normal or not. Normality test is compares between data that researcher had and a normal data distribution which has same mean and standard deviation with researcher's data (Sarjono & Julianita, 2011). Normality test is very important requirement in doing measurement in a study. In statistic, to measures the normal distribution is using formula of Zskewness and Zkurtosis. According to (RESSI,

2017), a data could be stated has normal distribution if the Zskewness < 2 and Zkurtosis < 7. Moderate normal when 2 < Zksewness < 3 and 7 < Zkurtosis < 21. Then, the data could be stated have no normal distribution if the Zskewness > 3 and Zkurtosis > 21.

Correlational test. There are some step to do correlational test based on Sarjono and Julianita (2011), include:

Step 1. Input the data of variable X and variable Y into SPSS.

Step 2. Choose menu Analyze and then choose Correlate and then choose Bivariate.

Step 3. Move the variable C and variable Y to the box at right side, then double click and choose two tailed or one tailed.

Step 4. Then, click Option. In the coulomb Missing Values, choose Exclude cases pairwise. Then, click Continue and click OK. The result would show up.

If the probabilities value is smaller than or similar with the Sig. probabilities value (0.05 < Sig.), Ho accepted (H1 rejected). Ho accepted meant that the correlation between punishment and motivation is not significant. However, if the probabilities value is bigger than or similar with the Sig. probabilities value (0.05 > Sig.), Ho rejected (H1 accepted). It meant that, the correlation between punishment and motivation is significant.

Based on Sugiyono (2011). There are some categories of correlation:

The correlation category value	
Interval of coefficient	**The level of correlation**
0.00 – 0.199	Very low
0.20 – 0.399	Low
0.40- 0.599	Moderate
0.60 – 0.799	Strong
0.80 – 1.000	Very Strong
Source: Sugiyono (2011)	

Table 3.6 Correlation category value

Correlation coefficient. It could be defined as a statistic that measuring the degree which two variables are related. The magnitude of the association depend on the value of the coefficient with scale from 0 to 1.0. If the value is larger, it meant that the relationship is stronger (Furlong, Lovelace & Lovelace, 2000). When the value of the coefficient is bigger than 0, so it could be indicate that they have stronger relation. Based on Spearman's in Kothari, coefficient of correlation is a technique that used by researcher to determining the degree of correlation between two variables in ordinal data where ranks are given to the different values of the variables.

Level of significance for a One Tailed Test											
.	.05	. .025	. .01	. .005	. .0005	. . .05	. .025	. .01	. .005	. .0005	
Level of Significance for a Two-Tailed Test											
df=(N-2)	.10	.05	.02	.01	.001	df=(N-2)	.10	.05	.02	.01	.001
1	0.988	0.997	0.9995	0.9999	0.99999	21	0.352	0.413	0.482	0.428	0.640
2	0.900	0.950	0 .980	0.990	0.999	22	0.344	0.404	0.472	0.515	0.629
3	0.805	0.878	0.934	0.959	0.991	23	0.337	0.396	0.462	0.505	0.618
4	0.729	0.822	0.882	0.971	0.974	24	0.330	0.388	0.453	0.496	0.607
5	0.669	0.755	0.833	0.875	0.951	25	0.323	0.381	0.445	0.487	0.597

Table 3.7 Pearson's correlation coefficient table

1) Researcher have to decide that should use a One-Tailed or Two-Tailed Test:

a. One-Tail: if researcher have an *a priori*: hypothesis as to the sign (- or +) of the correlation.

b. Two-Tail: if researcher have no *a priori*: hypothesis as to the sign of the correlation.

2) Calculate *df* (degrees of freedom) = N (sample size) - 2).

3) Locate this *df* in the table.

4) Use this row of threshold values.

5) Researcher read across the row from left to right until researcher find a value greater than researcher calculated *r* statistic.

6) The *P*–value for researcher observation is the *P*–value at the top of the first column to the left of researcher value. For example: if *r* for *df* = 15 is 0.523, then $P < 0.025$ for a One-Tailed Test: if *r* is 0.599, then $P < 0.01$.

7) A $P < 0.05$ or more smaller value indicates that researcher could reject the null hypothesis that the two variables are not correlated.

It could be said that the result analyses have evidence the variables are significantly related. If the researcher's r statistic value lies to the left of the 0.05 column, then the results are not significant (n.s. $P > 0.05$). The Researcher cannot reject the null hypothesis that the variables are not related.