

Chapter Three

Research Methodology

This chapter presents the information about the research methodology used in this research. There are six sections namely research design, research setting, research participants, research instrument, data collection, and data analysis.

Research Design

This study adopted quantitative research design. The researcher chose quantitative design because this design is suitable to answer the research questions which aim to find out students' conscientiousness trait, students' academic achievement and the correlation between students' conscientiousness and their academic achievement. Thus, quantitative design was appropriate to be used since the researcher wanted to analyze trends, compare and relate variables using statistical analysis of students' conscientiousness trait and students' academic achievement. Creswell (2012) asserted that quantitative approach used to analyze or relate variables using statistical and interpreting the research result by comparing it with previous predictions and past research. Therefore, by applying quantitative method, the exact result could be more discovered by distributing questionnaire to the respondents.

This research was conducted through correlational research design. Creswell (2012) asserted that the researcher uses correlational statistical test to describe and

measure the correlation between two or more variables. To deliver the best result, the researcher used correlational explanatory design because this study explained the association between two variables. In addition, correlation design would be suitable for this research.

Research Setting

This research was conducted in one of private universities in Yogyakarta specifically students of English Language Education Department. There were several reasons why the university mentioned was chosen to be the place to gather the data. Firstly, it was because there were so many students with various personalities. Secondly, there was a learning process occurred and almost all subjects were in English and the students need some of conscientiousness traits like diligent, persistent and determination to learn English because it was challenging to learn a new language especially when the students did not live in the native English speaking countries. Thirdly, the students of English Language Education Department are expected to become teachers after they finish their study. So, the students need to have some of conscientiousness traits like discipline, sense of responsibility, purposeful, reliable and methodical because those traits could train and benefit them to be great teachers. Lastly, it was because the researcher had access to conduct research in this department. Therefore, the statement mentioned above was the reason for the researcher to choose EED of the private university. This research was conducted in April 2019.

Research Participants

The research participants of this study were the students of English Language Education Department batch 2016. Additionally, EED students who were involved as respondents in this research were the students of sixth semester. This was because the EED students batch 2016 were in their third year of college and their accumulated GPA from first semester to sixth semester was valid enough to be the representative of their score to measure their academic achievement. Moreover, students batch 2016 had already taken at least 120 course credits. The students also have been studying for 3 years in the English Language Department so the students have been through soft skill training and their conscientiousness characteristics have been building up since then.

In this study, the researcher used simple random sampling to take the samples. Easton and McColls (1997) stated that simple random sampling is a subset of a statistical population in which each respondent has the equal chance of being selected and to be included in the sample. The researcher chose randomly all the students from batch 2016 that consist of 95 students in total as the research population. From 95 students the researcher only chose 79 students as the respondents and there was no special requirement to be the respondents of this research. The sample of the respondents was chosen randomly by using lottery, the researcher got some students becoming the respondents by putting students' numbers on a white paper and then the

researcher randomly picked the rolled paper. Based on the result of lottery process, 79 students became the official respondents.

Research Instrument

The data gathering instruments used in this research were questionnaire and a document of students' Grade Point of Average.

Questionnaire. The questionnaire was used to gather the data for the students' conscientiousness personality traits. As eloquently stated by Morrison, Cohen and Manion (2011), that questionnaire is the convenient instrument in providing numerical, structured data and able to analyze the data straightforwardly. Respondents filled the questions in the questionnaire with the check mark (√) on the answer column. The questionnaire rating scales were strongly agree (5), agree (4), neutral (3) disagree (2), and strongly disagree (1). The questionnaire was distributed to the students of batch 2016. The questionnaire used Indonesian language to make the respondents understand and answer the questions easily and it consisted of 23 items. The range score of conscientiousness questionnaire were 23 to 115. All items answered the research question number 1. The questionnaire items were adapted from John, Naumann and Soto (2008) in Handbook of Personality which consisted of Big Five Inventory personality and the researcher picked the questionnaire items that categorized as conscientiousness trait. The researcher also adopted from Costa and McCrae (1999) and Bandura, Barbaranelli and Caprara (2001). Nineteen items were

adapted from Handbook of Personality, two items from Costa and McCrae and the two last items were adapted from Bandura, Barbaranelli and Caprara.

Document of students' GPA. The other instrument used in this study was students' Grade Point of Average (GPA). The GPA was gained from the administration office of English Education. Therefore, students' GPA was used as an indicator to determine their academic achievement level. This data was taken from students in their sixth semester. The range score for GPA was 0.00 to 4.00. The students' GPA answered the research question number 2.

Data Collection Procedure

In conducting this research, the researcher did some steps to gather the data. First, the researcher prepared the questionnaire instrument which was adopted from John, Naumann and Soto (2008), Costa, McCrae and Dye (1992) and Bandura, Barbaranelli and Caprara (2001). Then, the questionnaire was checked by three expert judgments to measure the validity of questionnaire items. As stated by Cohen, Manion, and Morrison (2011), through a self-administered questionnaire the respondents completed the questionnaire correctly if the researcher is in the presence of data collection. So, the researcher did the self-distributing and the questionnaire was in the form of link from Google form. The data gathering took place in two classes and the conscientiousness questionnaire was distributed to the students batch 2016. In distributing the link of Google form, the researcher came to the class B and

C and asked one of the students WhatsApp number and the researcher shared the link to one student. After that, the chosen student shared the link to the class chatroom on WhatsApp and Line App. Through a Google form link, students could access and fill the conscientiousness questionnaire. Then, the researcher waited for the respondents to fill out the questionnaire. For class A, the researcher shared the Google form link through WhatsApp without coming to the class because the class was cancelled. From the total populations of 95 students, the researcher was able to collect 84 questionnaire data from students.

Validity and Reliability

In this part, the data gathered from the questionnaire were checked using validity and reliability test. It was done to determine whether the data calculated were valid or not. The researcher presented the data validity and reliability.

Instrument Validity. The questionnaire instrument for this research needed to be tested before being distributed. It clarified the valid questions in the questionnaire instrument. Dempsey (2002) mentioned that validity specifies the instrument capability in collecting the data to measure and get significant data. The researcher asked lecturers to be the validator of this study. In checking the questionnaire, the lecturer checked the items with the range score from 1 to 4. The experts also checked the language accuracy of the questionnaire statement items because the original questionnaire items were in English and the researcher translated

it into Indonesian language. After the questionnaire was done being checked, all items were ready to get tested by using Aiken test on a spreadsheet program. Furthermore, Aiken test was used to determine whether the data was valid or not. There were 23 items of conscientiousness questionnaire checked by Aiken test. The formula of Aiken test and the result are presented below;

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

V = Validity index of the instruments

n = number of raters

s = r - I0

c = numbers of categories

r = score of categories

\sum = the sum of s for the n raters

I0 = the lowest score

Items	Expert 1	Expert 2	Expert 3	s1	s2	s3	Sum	V	Validity Category
001	3	3	4	2	2	3	7	0,78	Moderate
002	4	4	4	3	3	3	9	1,00	High
003	3	3	4	2	2	3	7	0,78	Moderate
004	4	4	4	3	3	3	9	1,00	High
005	3	3	4	2	2	3	7	0,78	Moderate

006	4	4	4	3	3	3	9	1,00	High
007	4	4	4	3	3	3	9	1,00	High
008	4	4	4	3	3	3	9	1,00	High
009	3	3	3	2	2	2	6	0,67	Moderate
010	4	4	4	3	3	3	9	1,00	High
011	4	4	4	3	3	3	9	1,00	High
012	4	3	4	3	2	3	8	0,89	High
013	4	4	4	3	3	3	9	1,00	High
014	4	4	4	3	3	3	9	1,00	High
015	3	3	3	2	2	2	6	0,67	Moderate
016	4	3	4	3	2	3	8	0,89	High
017	3	4	3	2	3	2	7	0,78	Moderate
018	4	4	4	3	3	3	9	1,00	High
019	4	3	4	3	2	3	8	0,89	High
020	4	3	4	3	2	3	8	0,89	High
021	4	4	4	3	3	3	9	1,00	High
022	3	4	4	2	3	3	8	0,89	High

023	4	4	4	3	3	3	9	1,00	High
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Table 3.1. *Aiken test table for validity checking*

The criteria to identify the validity are low if the item is < 0.4 , medium if the item is $0.4 - 0.8$ and high if the item is > 0.8 . Based on the criteria, the researcher could determine the items were valid. The item was valid if the score is 0.4 or higher. These criterions were used to check whether the data are valid or not. Based on the result from Aiken test above, the researcher found out 17 items categorized as high validity and 6 items had medium validity. The items with medium validity were items number 1, number 3, number 5, number 9, number 15, and number 17. The Aiken test showed that there was no item with low validity. Hence, all of the questionnaire items were valid.

Instrument Reliability. To test the reliability of the instrument, the researcher used alpha Cronbach coefficient method. Measuring the reliability is carried out using statistics calculation. Sugiharto and Sitinjak (2006) mentioned that reliability is used in the research to get actual data so people could rely on the fact that the researcher gathered. The instrument was measured by the Cronbach's alpha and it was reliable when the result is greater or equal 0.70 (Nazaruddin and Basuki, 2016). An alternative reliability calculation was found by using Cronbach's Alpha coefficient. The reliability guidelines can be seen in the table below;

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	Unacceptably Low Reliability

Table 3.2. *Reliability criteria of Cronbach Alpha.*

Based on the table of reliability criteria above, the data item was reliable if the result is 0.70 or higher. If the result of reliability is under 0.60, the data item is not reliable. The researcher checked whether the data was reliable or not by using statistical application program. The result of reliable analysis on the statistical application program showed that all of questionnaire items were reliable. There were 23 questionnaire items used in this research.

Reliability Statistics	
Cronbach's Alpha	N of Items
.838	23

Table 3.3. *The result of reliability test*

The reliability statistic of Cronbach Alpha is 0.838 which included in reliable category with interval 0.80 – 0.90. It means that all questionnaire items were reliable. The table below showed that 1 item Q11 had a greater number than 0.838. In fact, all the instruments were reliable to be used but based on the data per item indicated that

one questionnaire item were not reliable but all of the items were on the category of a highly reliable which included in the interval 0.80-0.90.

Items	Cronbach Alpha Value	Status
Q1	0.831	Highly Reliable
Q2	0.829	Highly Reliable
Q3	0.832	Highly Reliable
Q4	0.828	Highly Reliable
Q5	0.829	Highly Reliable
Q6	0.830	Highly Reliable
Q7	0.834	Highly Reliable
Q8	0.830	Highly Reliable
Q9	0.832	Highly Reliable
Q10	0.835	Highly Reliable
Q11	0.842	Highly Reliable

Items	Cronbach Alpha Value	Status
Q13	0.838	Highly Reliable
Q14	0.830	Highly Reliable
Q15	0.831	Highly Reliable
Q16	0.833	Highly Reliable
Q17	0.834	Highly Reliable
Q18	0.831	Highly Reliable
Q19	0.830	Highly Reliable
Q20	0.829	Highly Reliable
Q21	0.835	Highly Reliable
Q22	0.834	Highly Reliable
Q23	0.827	Highly Reliable

Q12	0.827	Highly Reliable
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Table 3.4 *The result of reliability test per item*

Data analysis

This study used two data analysis, descriptive statistic and inferential statistic. According to Cohen, Manion, and Morrison (2011), descriptive statistics include frequencies, measure of dispersal (standard deviation), measures of central tendency (means, modes, medians), cross tabulations and standardized scores. Meanwhile, inferential statistic with contrast made inferences and predictions based on the data gathered. Hence, the researcher used descriptive statistic and inferential statistic using Pearson Product Moment Correlation (r) to analyze the data and to find out all the answers of three research questions.

The first research question about students' conscientiousness trait was analyzed using descriptive statistic. The researcher used descriptive statistic to present and describe the data by pointing out the central tendency (mean, mode and median). The conscientiousness questionnaire data from respondents was put into spreadsheet program and then the data was being analyzed through statistic calculation software. In analyzing the data from the questionnaire to determine students' conscientiousness, the researcher made the interval of students' conscientiousness trait level category based on Supranto (2000) class interval formula. The level of students' conscientiousness trait was categorized into five

categories such as very low, low, moderate, high, and very high. The maximum value from students' conscientiousness trait was 104 and the minimum was 55.

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

$$c = \frac{104 - 55}{5}$$

$$c = 9,8$$

C = class width, class size, class length

Xn = Maximum value

X1 = Minimum value

K = The number of class

From the formula above, the researcher found out the class width was 9,8. It was used as the interval to categorize the level of students' conscientiousness trait.

The result of the interval value was shown below;

Scale	Description
$55 \leq x < 64.8$	Very Low
$64.8 \leq x < 74.6$	Low
$74.6 \leq x < 84.4$	Moderate
$84.4 \leq x < 94.2$	High
$94.2 \leq x < 104$	Very High
TOTAL	

Table 3.5. *Category of students' conscientiousness trait.*

The second research question is about students' academic achievement level, the researcher also used descriptive statistic to analyze the data. The data was the

score of students' GPA from 0.00 to 4.00. The classification of the students' GPA level had 5 categories. They are "very high/with honors", "high/very satisfactory", "moderate/satisfactory", "fair", and "low" as the last category of the GPA. The category of GPA level was based on the book of *Panduan Akademik UMY* 2018/2019.

Scale	Description
3.51 – 4.00	Very High / With honors
3.01 – 3.51	High / Very Satisfactory
2.76 – 3.00	Moderate / Satisfactory
2.75 – 2.00	Fair
Less than 2.00	Low
Total	

Table 3.6 *Category of students' GPA*

Then the last research question was analyzed using inferential statistic to find out the relation between students' conscientiousness trait and students' academic achievement. The researcher tested the normality of the data using inferential statistic to determine data distribution. Then, the researcher measured the hypothesis of whether the hypothesis was accepted or rejected. In this study, the researcher used Pearson Product Moment (r) to investigate the correlation between students' conscientiousness and their academic achievement. Cohen, Manion, and Morrison (2007) mentioned that the Pearson's product-moment correlation coefficient (r) is ranging statically from -1.0 to +1.0. The correlation coefficient of -1.0 means there was a perfect negative correlation between two variables. It happened in the negative correlations, when one variable increases while the others variable decrease and vice

versa. The correlation coefficient of +1.0 means the perfect correlation between two variables. Perfect correlation is positive correlations when variables can increase and decrease together.