**Chapter Four**

Result and Discussion

This chapter describes the result of three research questions. The first research question is "How are multiple intelligences among EED of UMY students?''. The second research question is "How is EED of UMY students' academic achievement?". The third research question is "Is there any correlation between multiple intelligences and students' academic achievement?". Then, the discussion of the results is also explained in this chapter.

Results

This part describes the results of the study. The results are about the level of multiple intelligences among EED of UMY students, the level of EED of UMY students' academic achievement, and also the correlation between their multiple intelligences and their academic achievement. The results showed that students' multiple intelligences level belongs to moderate category with the mean value of 65.13. The result also showed that students' academic achievement was moderate of category. In further, the result showed that there is correlation between multiple intelligences and academic achievement among EED of UMY students with the r value is 0.429. This r value is higher than r table (0.2039). The correlation was on moderate correlation level since the interval coefficient was on the range of 0.400 – 0.599. The detail results are revealed in the following discussion.

Result 1: The Level of Multiple Intelligences among EED of UMY Students batch 2016.

From the data analysis, it is revealed that the mean value of students' multiple intelligences level was 65.13. Based on the category of students' multiple intelligences level, this score belongs to moderate level category. It means that most of EED of UMY batch 2016 students have moderate multiple intelligences level.
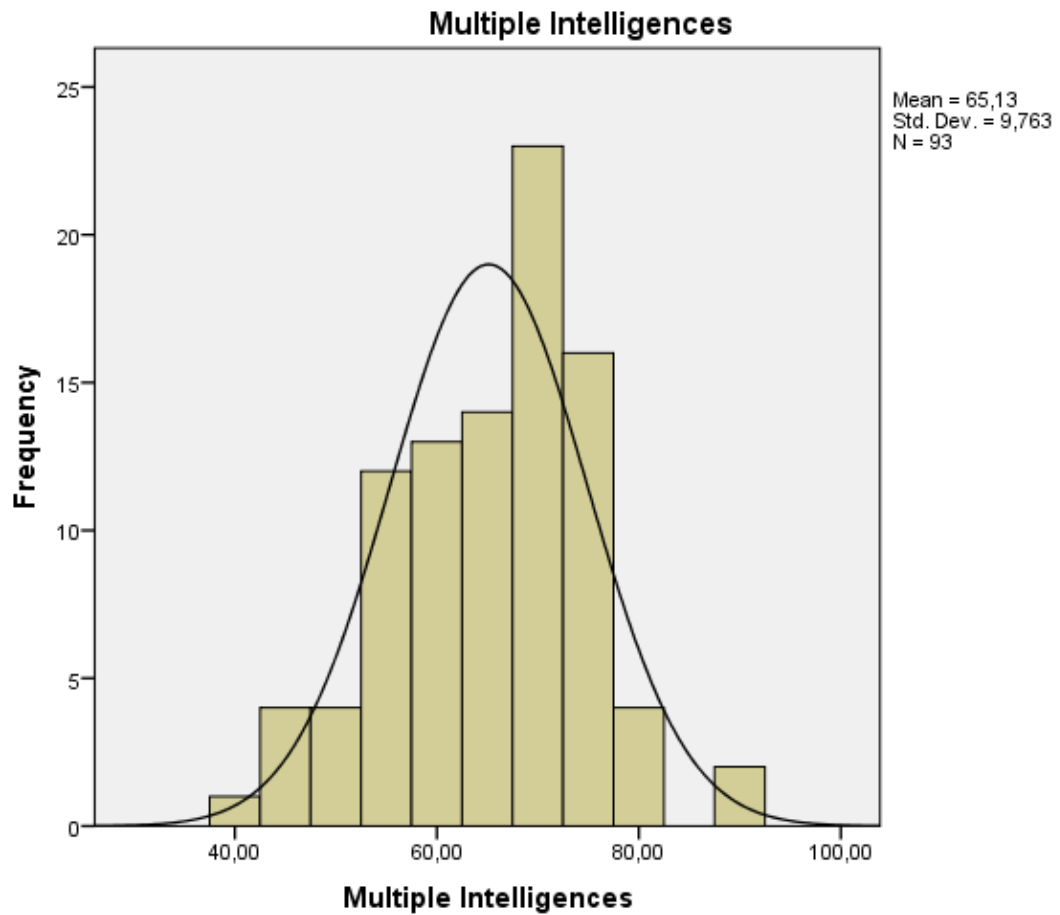
Figure 2. Histogram of Students' Multiple Intelligences

The result also showed that there were nine students (6.5%) who have high multiple intelligences level. There were sixty-three students (70.9%) who have moderate multiple intelligences level, and then there were twenty-one students (22.6%) who have low multiple intelligences level. The detail result of students' multiple intelligences was presented on the table below:

Table 11

Result of students' Multiple Intelligences

Students' Multiple Intelligences	Category	Frequency	Percent
≥ 74.8	High	9	6.5
57.4 – 74.7	Moderate	63	70.9
40.0 – 57.3	Low	21	22.6
Total		93	100.0

Result 2: The Level of Academic Achievement among EED of UMY Students batch 2016.

The second research question is "How is EED of UMY students' academic achievement?". The researcher wants to find out the students' academic achievement level. Students' academic achievement is measured using grade point average (GPA). The data were collected from EED of UMY batch 2016 students' grade point average (GPA) of their first semester. Then, the result showed that the minimum score of the students who participated in this study was 2.79 and the maximum score was 4.00. Based on Supranto's (2000) formula that was written in chapter three (see table 8), the researcher categorized students' academic achievement into four categories with interval 0.40. There were good, moderate, and poor categories.

The result showed the mean value of students' academic achievement was 3.47. Based on the category of students' academic achievement, this score belongs to moderate level category. It was indicating that most of EED of UMY batch 2016 students have moderate academic achievement level.
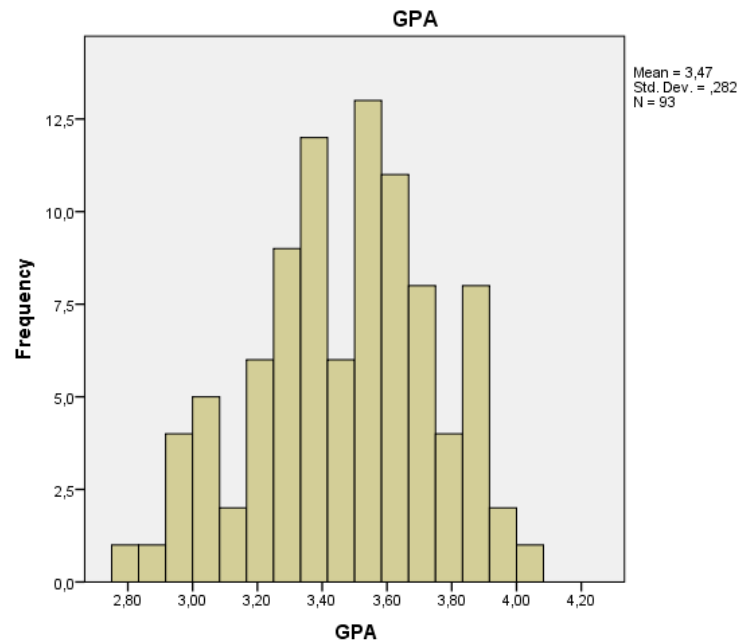
GPA

Mean = 3,47
Std. Dev. = ,282
N = 93

Figure 3. Histogram of Students' Academic Achievement

The result also showed that there were thirty-one students (33.3%) who have good academic achievement level. There were forty-eight students (51.6%) who have moderate academic achievement level, and then there were fourteen students (15.1%) who have low academic achievement level. The detail result of students' academic achievement was presented on the table below:

Table 12

Result of Students' Academic Achievement

Students' GPA	Category	Frequency	Percent
≥ 3.61	Good	31	33.3
3.20 – 3.60	Moderate	48	51.6
2.79 – 3.19	Poor	14	15.1
Total		93	100.0

Result 3. The Correlation between Multiple Intelligences and Students' Academic Achievement among EED of UMY batch 2016 Students

The third research question of this study is about the possibility of correlation between students' multiple intelligences and their academic achievement. However, before analyzing the correlation between those variables, the researcher tested normality and linearity of data.

Normality test. The researcher tested normality of the data using Z *skewness* and Z *kurtosis* test in order to find out whether the data distribution was normal or not. The data distribution was normal when Z *skewness* is lower than 2 (Z *skewness* < 2) and Z *kurtosis* is lower than 7 (Z *kurtosis* < 7). Meanwhile, the data does not have normal distribution when Z *skewness* is higher than 3 (Z *skewness* > 3) and Z *kurtosis* is higher than 21 (Z *kurtosis* > 21). The result of normality test showed on the table below:

Table 13
The Result of Normality Test

Variable	Z skewness	Z kurtosis	Description
Multiple Intelligences	-0,200	0,162	Normal
Students' Academic Achievement	-0,274	-0,510	Normal

The result showed that Z *skewness* and Z *kurtosis* score of multiple intelligences were -0,200 and 0.162. It can be concluded that the data distribution of students' multiple intelligences was not normal because Z *skewness* score was lower than 2 (-0,200 < 2), and Z *kurtosis* score was lower than 7 (0.162 < 7). Then, Z *skewness* and Z *kurtosis* score of students' academic achievement were -0.274 and -0.510, indicating that the data distribution of students' academic achievement was normal since its Z *skewness* was lower than 2 (-0.274 < 2) and Z *kurtosis* was lower than 7 (-0.510 < 7). In conclusion, the distribution of data was normal.

Hypothesis test. This test was to answer the third research question about the correlation between multiple intelligences and EED of UMY students' academic achievement. This test was also conducted to prove the hypothesis of the study that there is no correlation between multiple intelligences and academic achievement. Then, the correlation between those variables was identified using Pearson Product Moment Correlation (r). The correlation result was presented on the table 13 below:

Table 14

The Result of Correlation Test

Independent Variable (X)	Dependent Variable (Y)	N	Pearson Correlation	Sig.
Students' Multiple Intelligences	Academic Achievement (GPA)	93	0.429	0.000

The result showed that Pearson correlation values (r value) were 0.429. Then, the significance values (ρ-value) was 0.000 with the sample size (N) was 93. The hypothesis testing was analyzed by comparing r value with r table. The variables have the correlation when r value is higher than r table. Meanwhile, the variables do not have the correlation when r value is lower than r table. The result above showed that r value was 0.429 and r table was 0.2039 with degree of freedom (DF) was 91 (see appendix F). It can be concluded that there is a correlation between multiple intelligences and students' academic achievement since the r value is higher than r table, and then null hypothesis (H$_0$) was rejected. Then, the correlation was on moderate correlation level since the interval coefficient was on the range of 0.400 – 0.599.

Discussions

This part describes the discussion on the result of this study. There are three discussions, and those three are presented below:

The level of multiple intelligences among EED of UMY students batch 2016. The first research question of the study was about how the level of multiple intelligences among EED of UMY students batch 2016 is. The results showed that the students have moderate level of multiple intelligences with the mean value was 65.13. Then, the researcher also found that there were nine students (6.5%) who have high multiple intelligences level. There were sixty-three students (70.9%) who have moderate multiple intelligences level, and then there were twenty-one students (22.6%) who have low multiple intelligences level. It means that the average of students has moderate level of multiple intelligences. According to Gardner and McKenzie (2000, 2017), students who have moderate level of multiple intelligences are averagely have the skills or competence to solve the problem or difficulties that they deal with in the learning process.

The result of study was meant as a snapshot of time. It means that students' multiple intelligences still can change. The students can strengthen their multiple intelligences by some activities as presented below. The first is write a literary masterpiece. It can be a story, poem, novel or even a play. The students can let their imagination fly and allow the words from their mind to trickle down to their journal. They show their write-up to English teacher and ask for some feedback. What parts are exceptional? What sections need improvement? While they might not write down an award-winning novel on their first try. This activity helps the students to improve their linguistic intelligence (Gardner, 2000; McKenzie, 2017).

The second is break secret codes. The students can take the role of Sherlock Holmes by playing detective with their friends. The students let their friends create secret codes – or lift some from the web – and try to break them without the help of anybody. Once the

students get the hang of cracking codes, they will find it easier to solve logical and mathematical problems along the way. This activity can help the students to strengthen their logical intelligences (Gardner, 2000; McKenzie, 2017).

The third is play puzzles. The students can have fun while they hone their visual-spatial intelligence. In fact, the most entertaining way to hike their intelligence quotient (IQ) by a few notches is to play puzzles. Games such as Rubik's Cube, Jigsaw puzzles and spatial puzzles that require them to maneuver items inside their head will do wonders for their visual-spatial skills (Gardner, 2000; McKenzie, 2017).

The fourth is practice and play sports. It goes without saying that practice indeed makes perfect. Of course, if the students want to be physically intelligence just like pro athletes – then they need to engage their body in sports that tickle their fancy. It does not matter if they suck at first. As long as they set their mind to it – and as long as they are 100% motivated to improve their bodily intelligence, then they will be able to improve their bodily-kinesthetic intelligence – sooner or later. The key to improving students' bodily-kinesthetic intelligence is to practice well and often—and to practice correctly. By learning how to improve their skills and getting better, they will improve their bodily-kinesthetic intelligence (Gardner, 2000; McKenzie, 2017).

The fifth is listen to different types of music. Musical intelligence is not just about singing well and playing a plethora of instruments, it is about appreciating the beauty of music – no matter how peculiar or weird it might be. The students can hone music smarts by lending an ear to different kinds of symphonies – from classic to pop, even from native to eclectic. By immersing their ears in multitudes of melodies, they will be able to distinguish the different tones that govern the world of music (Gardner, 2000; McKenzie, 2017).

The sixth is socialize. The students might have a big brood of friends, but if they want to improve their interpersonal intelligence, then they need to get out of their shell and be a

society butterfly. The students can take time to meet new people and engage in conversations that will help they learn more about their newfound colleagues. This activity can help the students to improve their interpersonal intelligences (Gardner, 2000; McKenzie, 2017).

The seventh is formulate their own personal development plan. How do they want to be in the next few years? What are their plans when they grow old? The students can write them all on their journal and reflect on them whenever they can. This will keep they aware of their own emotions and desires in life. This activity can help the students to strengthen their intrapersonal intelligences (Gardner, 2000; McKenzie, 2017).

The last is experience the great outdoors. The students must expose themselves to nature. They have to break away from the comfortable confines of their home. They can trek, hike, and bike their way through forests and mountains. These exhilarating activities will help them to improve their skills in categorizing and recognizing plants, animals, even rock formations (Gardner, 2000; McKenzie, 2017).

The level of academic achievement among EED of UMY students batch 2016.

The second research question of this study is about how EED of UMY students' batch 2016 academic achievement is. The result showed that the mean score of students' academic achievement was 3.47. Based on the categories in students' academic achievement, the score 3.20 – 3.60 are on the good level of category. Hence, it can be concluded that students of EED of UMY batch 2016 have moderate academic achievement level, indicating that they are averagely performing good in learning activities and they also comprehend the material given by the lecturers (Khurshid, 2013).

The students' academic achievement still can be improved. There are several options provide ways to help student academic achievement especially within the school system. They are focused curriculum, strategic tutoring, and student engagement.

The first is focused curriculum. A focused curriculum for students will help in improving students' academic achievement. This strategy means focusing on the specific academic needs of each student. Courses that follow a focused agenda will provide students with the ability to achieve in a particular subject matter. This also allows the schools to have higher standards in each focused are of academics (Khurshid, 2013).

The second is strategic tutoring. Strategic tutoring improves students' academic achievement. This means focusing on a particular element of the subject. For instance, a tutor working with a student who struggles with reading may focus on comprehension, definitions, motivation or sounding out words. If the root of the problem with academics gets addressed through tutoring, this should improve achievement in the subject (Sobur, 2003; Khurshid, 2013).

The last is student engagement. Positive engagement may help students achieve academic achievement in school. Interactive lessons that foster engagement in the classes will help students become motivated. According to Sobur (2003), if students feel that their academic success helps a team, this provides an incentive to do well in school. Fostering an environment that encourages students supporting one another may help improve overall students' academic achievement (Khurshid, 2013).

The correlation between multiple intelligences and academic achievement among EED of UMY students batch 2016. In the present study, the result showed that there is correlation between multiple intelligences and academic achievement among EED of UMY students batch 2016 with r value is higher than r table (0.429 > 0.204). The correlation between those variables were caused by the way of intelligence influences individual performance in learning which is directly increase their achievement. For the example, the correlation between musical intelligence and academic achievement maybe was caused by students' ability to sense to rhythm, tone, volume, and pitch. This statement was supported by

Richard and Rodgers (2001) who claimed that there are aspects of language such as rhythm, tone, volume, and pitch that are more closely linked to a theory of music than to a theory of linguistic. Another example was intrapersonal intelligence. Smith (2001) explained that affective variables such as self-esteem, inhibition and anxiety are important factors in second language mastery and are aspect of interpersonal intelligence which helps learner examine their strength and weaknesses in language learning processes. Similarly, as Rahimi and Abedini's (2009) statement, affecttive variable is considered to be one of the main determining factors of success in learning foreign or second languages. Hence, teachers should try to develop their students' intrapersonal intelligence so that this particular intelligence type will help improving their overall language learning. Meanwhile, EED of UMY students batch 2016 are not understand and used all their intelligences to increase their academic achievement as seen from the result that showed their academic achievement still in moderate level.

In conclusion, the null hypothesis (H_0) in which there is no correlation between multiple intelligences and academic achievement among EED of UMY students batch 2016 was rejected. The result of present study was supported by Ayesha and Khursid's (2013) study that also found that there is a correlation between students' multiple intelligences and academic achievement. The result was also in line with Azimmudin and Chandra's (2013) statement, they argued that intelligence is one of factors affecting academic achievement. Intelligence of the students is directly related to the mental mechanism of the person which is the best way to increase the academic achievement of person.