


## A Correlation between Students' Intelligence Quotient (IQ) and Their Writing Ability for the Eighth Grade

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### Abstract

This article was focused on the correlation between students' intelligence quotient (IQ) and their writing ability. The purpose of the study was to find out whether there is any positive correlation between students' intelligence quotient (IQ) and their writing ability. This study was quantitative research. The sample was 25 students. To collect the data, the researchers informed the students' an instrument in multiple-choice tests as many as 15 questions for intelligence quotient (IQ) and an essay which is a form in the descriptive text for writing ability. Descriptive statistic and hypothesis testing were used to analyze the data in this research. Furthermore, the mean score of students' intelligence quotient (IQ) was 78.00 and 66.24 was the mean score of students' writing. Moreover, the Standard Deviation of intelligence quotient (IQ) was 3.464 and writing was 4.772. The present researcher found out the result of the correlation coefficient was .403 at  $p = .046$  which was lower than 0.05 (as the standard significance level in SPSS) at two tails. This implied the first  $H_0$  (null hypothesis) was rejected and first  $H_a$  (alternative hypothesis) was accepted. It means that there was a correlation between students' intelligence quotient (IQ) and their writing ability for the eighth graders of MTs Ihyah' Ulumuddin.

**Keywords:** Intelligence Quotient (IQ), Writing Ability, and Intelligence.

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### INTRODUCTION

English is a vital language for students to become active participants in modern education and the world, Especially Indonesian local and international students. The students need English as a language to present assignments, besides English is international recruitment for national and international scholarship (Haikal, 2018; Sari, Y. A., Utama, F., & Yawisah, U. (2019). Even for European citizenship. The common European framework of references for language (CEFR) was created to provide transparency level descriptor for language competence which forms of the basis of educational standard in the European Union (Keller, et al 2019; Hutchison, 2004). Getting a scholarship is having a good score in all aspects of it. Speaking writing, listening, and reading scores must be balanced to help an individual in doing the paper assignment. Recourses of the paper assignment come from international references like a journal in which English as the standard language.

In keeping all sources gained from what individuals watch, listen, and reading are need to put it into the blank pages to keep it in memory. Innovation, knowledge, idea, and plan inside the brain must put it into writing. Because the educational field is typically

given high effort in increasing writing proficiency relate to cognitive aspects. The cognitive model of writing has placed considerable emphasis on how memory working mediates planning, translation, and revision (Mavrou et al., 2020). It means individual memory working actively during writing. The memory works to plan and construct ideas while write or transfer it into the blank paper. Good memory affects well handwriting skills. The effect sizes in reading and listening can serve as a point of comparison for the effect size of writing reported in the current study (Hutchison, 2004).

However, it is not easy to master English especially writing. The English language includes four aspects such as listening, speaking, reading, and writing skills. While writing becomes a complex skill compare with those three skills. Writing is the ability to communicate effectively about a topic with the minimum amount of structural, lexical, and grammatical errors (Weigle, 2009; Scull, 2018). Writing is also believed to be culturally transferred in academic environments (Raimes, 2009). On the other hand, writing ability is giving stimulus responses base on some authority's definition of the correct answer (Nunan, 1999; Swan, Michael. 2018)

In learning English especially in writing sometimes students with high IQ can write in English better than students with low IQ. Intelligence Quotient is a constant over time ability that we are born with to learn (Dornye, 2005). Accordingly, there is a link between general intelligence and second language learning ability (Gardner and Lambert in Denji, 2012). It seems that writing as a part of language learning correlates with intelligence. Moreover, Intelligence Quotient (IQ) is the phenomena that involves assessment regarding one's capability to observe, analyze and interpret the circumstances (Gondal and Husain, 2013).

Pimsleur predicted students with an average grade in all subjects are often good in language learning, this success of learning is called learning ability (Ghabanchi and Rastegar, 2014). There were various ways to learn writing which one of them was giving materials specifically. It meant that teacher explained the material more details to students. It was a good way to encourage students in increasing their understanding. Using that way can reduce the problems above. The teachers also can change teaching strategy to solve the problems above, it meant that students can be divided with random to some groups when teaching-learning process. Students with high level IQ can be a group member of students with low level IQ, it will be effective in teaching learning process.

The present researchers concluded that writing ability is one of the capabilities to communicate that has functions to express ideas and messages to people and the environment in writing form. Besides that, intelligence makes students have memories description about something, this memory description will use to recall this memory in further. This is called cognitive process which allows students or people to learn from concept, understanding, and reason. This ability also makes human ability to recognize the pattern, have comprehended idea, plan, problem-solve, and of course has their language to communicate its.

This research has two relevant studies. The first study was done by Maulida (2003) entitled *The Correlation between Students' Intelligence Quotient and Their Speaking Ability in The Third Year of SMU Widya Dharma Turen-Malang 2002-2003*. The problem of study was to know is the correlation between students' intelligence quotient (IQ) and their speaking ability in third year of *SMU Widya Dharma Turen-Malang 2002-2003*. The research was a quantitative product moment research. This study categorized as pre-experimental design. The population of this study was all of the third year, which is consisted of one class, and sample of this study was consisted of 40 students. The instrument of this study used the speaking test about hobby, favorite persons and family.

Meanwhile, the differences between this research and the previous research were the previous research conducted at *SMU Widya Dharma Turen-Malang*. The population was

taken from the third year, which was consisted of one class. Meanwhile, this research was conducted at *MTs. Ihya' Ulumuddin*. The population consists of one class and sample will be taken from VIIIA. Moreover the previous research focuses on students' speaking ability but this research emphasize on students' writing ability. The second study was done by Rahmawati (2016) entitled *The Correlation between Students' Intelligence Quotient (IQ) and Students' English Achievement (A Study at Tenth Grade Students' of SMKN 9 Padang)*. The purpose of study was to know correlation between Intelligence Quotient (IQ) and Students' English Achievement. The research method was quantitative research. The population of the study was the tenth grade of hotel management of *SMKN 9 Padang* academic year 2016/2017. There are about 202 students who consisted of six classes. Hereinafter the sample of the research was selected by cluster sampling and the sample consisted of 31 students from X PH 5 class.

While the differences between this research and the previous research were the scope of study that consisted of subject and object of the research. The previous research was conducted in *SMKN 9 Padang* and the population of the research was the tenth grade students' of *SMKN 9 Padang*. Furthermore the previous research focuses on students' English achievement as a variable an independent variable.

Based on the above relevant studies, the present researchers will have the same in statement of problems. In This case, the researcher tries to observe the correlation students' intelligence quotient (IQ) and their writing ability. By doing an observation in *MTs. Ihya' Ulumuddin* especially at the eighth graders the researcher found some problems. First, the students were not comprehensible in writing skills because the content of the composition was not relevant to the topic, and sentences were not well organized. The second, there were many errors in grammar and spelling. Another problem was caused the students had low motivation in learning English especially in writing ability that was inadequate facilities in the school. Not only that, but the students also had difficulty in retelling their experiences. It was caused the students did not mastery vocabulary, spelling, and grammar. Even so, the researcher investigated the title is "a correlation between students' intelligence quotient (IQ) and their writing ability for the eighth graders of *MTs. Ihya' Ulumuddin*".

## **METHOD**

This study used a quantitative descriptive research design. The population was 25 students of eighth-graders at *MTs. Ihya' Ulumuddin* in the school year 2016-2017. It comprised all of the students of the eighth graders of *MTs. Ihya' Ulumuddin*. In this research, non-probability sampling was used as a method for selecting the sample.

From the statement above, it showed the population number of this research was the sample of this research. The research instrument is a tool to measure the research variable (Sugiyono, 2017). The instrument for IQ was 15 items of multiple choices are used. Furthermore, the instrument was valid to test because it was taken from Saputra's book (Saputra, 2015) in *Seberapa Cerdaskah Anda? Berapa Nilai IQ Anda?* Besides, to calculate the students' intelligence quotient (IQ) the present researcher used the formula below.

$$IQ = \frac{\text{Right Answer}}{\text{Students' age}} \times 100$$

The Writing instrument is according to Chessel used an essay in the form of writing to measure students' ability to express their ideas appropriately and persuasively (Roberts, C., & Street, B. 2017). The researcher asked the students to write a descriptive text to measure students' writing. The researcher classified the writing score by using writing analytical scoring rubric. The scoring was based on five aspects; they were content, organization, vocabulary, grammar, and mechanics (Fink, L. D. 2013; Cervetti, G. N., Barber, J., Dorph, R., Pearson, P. D., & Goldschmidt, P. G. (2012).

Then, all of the data were gathered and analyzed by using SPSS 17 Windows Program. The technique of Data Analysis is the researcher used descriptive statistics to counted mean score and standard deviation. Furthermore, to count mean score and standard deviation the present researcher used descriptive statistics in SPSS 17 for windows program, and hypothesis testing to analyze students' achievement. Hypothesis testing aimed at knowing whether or not the alternative hypothesis ( $H_a$ ) was accepted, the present researcher used SPSS 17 for Windows. Furthermore, the present researcher used Bivariate to test the hypothesis which 0.05 (as the standard significance level in SPSS).

## **RESULT AND DISCUSSON**

The ability of someone to read, write, tell stories, and learn languages, grammar, and syntax is called linguistic intelligence (K & Tay, 2017). Easy to learn a new language, new vocabulary, and anything that relates to linguistic. Intelligence is an ability to use knowledge to solve problems and adapt to the world (Haris, A. et.al. 2014). Besides, IQ otherwise named cognitive intelligence, it includes attributes such as basic mental processes and higher-order thinking such as reasoning, problem-solving, and decision making a score derived from a set of a standardized test of intelligence, originally designed to detect persons of lower intelligence and to detect children of lower intelligence to place them in the special education program. It is proven that an individual with an average IQ and above would be well adjusted in his environment. However, Logical-mathematical Intelligence is ability to understanding, manipulating, and reasoning successfully (Gardner 1983 in Madkour et al., 2016). It is also the individual that familiar with numbers, always has the logical reason for something, and can guess something will happen. Gardner in (Madkour et al., 2016). It is also the individual that familiar with numbers, always has the logical reason for something, and can guess something will happen. This individual also has the capability in learning computer programming or everything involved numbering on it.

Furthermore, an individual with spatial intelligence is easy to sensitive to visualize something and has a strong visual memory. They use chart or graph organization to think about the companies structure (Hegarty, 2010). Their Visual-spatial intelligence is signalized that might to see a picture or condition and estimated the areas that might alter to change their appearance mien (Gardner, 1983 in (Esther, Pérez, Duque, & García, 2018). For instance, an individual with spatial intelligence can visualize the t-shirt fit into their body without trying it. They also have a powerful memory about any address or street that has been visited in the past. They are able to visualize images clearly and can solve jigsaw puzzles easily (Salam, Ibrahim, & Sukardjo, 2019).

Whereas, a bodily-kinesthetic intelligence belong to someone such as a dancer and gymnastic. Base on expert, bodily-kinesthetic intelligence is explained as the individual's ability to work with their body to clear up problems, express ideas, feeling and direct objects (Michelaki & Bournelli, 2016). Creativity in creating a new movement in dancing is regular like dancer-choreographer (Armstrong, 2009 Winarti, A., Ichsan, A. N., & Istyadji, M. 2017). Afterward, individuals with interpersonal intelligence are to keep and care for other person feeling. (Armstrong 2009 in (Saidi, 2020) also adds the interpersonal person has ability to change someone mood, able to motivate, and feel other people feeling The cognitive unit of inter personal intelligence involved interpersonal understanding, social effectiveness, leadership, and social perception (Shearer & Karanian, 2017). In other words, This individual cares about something happen outside of the person (Ramirez, 2018). They are totally substantial listeners, facile to communicate, and aware of a person's mood. Then, the cognitive unit of intrapersonal skill involve self-regulation, managerial skill, and directing function (Shearer & Karanian, 2017). They also have ability of self-aware and explore emotion and motivation. The self gained feeling, built sympathy,

empathy and individuality by text or the world factor (Ramirez, 2018). This usually belongs to philosophers, psychologists, and theologues.

Based on the data of the variable X (students' intelligence quotient), and variable Y (students' writing ability). The result of students' intelligence quotient (X) where the total score of students' IQ was 1947 and the students' mean score was 77.9. While the result of students' writing ability (Y) where the students' total score was 1656, and the students' mean score was 66.24. Furthermore, the Standard Deviation of X was 3.464, and Y was 4.772.

After analyzed by using descriptive statistics, the researcher found out the result of the correlation coefficient was .403 at  $p = .046$  which is lower than 0.05 (as the standard significance level in SPSS) at 2-tailed.

Table 1. Correlation coefficient

<b>Correlations</b>			
		IQ	WRITING
IQ	Pearson Correlation	1	.403*
	Sig. (2-tailed)		.046
	N	25	25
WRITING	Pearson Correlation	.403*	1
	Sig. (2-tailed)	.046	
	N	25	25

\*. Correlation is significant at the 0.05 level (2-tailed).

It showed there is a correlation between students' intelligence quotient and their writing ability. This implied the first  $H_0$  (null hypothesis) was rejected and the first  $H_a$  (alternative hypothesis) was accepted.

The researcher elaborated on the overall results of this study. The researcher discusses, answers the researcher questions, and the problem of this study "is there any positive correlation between students' IQ and their writing ability for the eighth graders of *Mts Ihya' Ulumuddin* in the school year 2016-2017?"

Following calculation the data by using descriptive statistics, the researcher found out the results of this research that was provided. Generally, the mean score of students' intelligence quotient (IQ) was evidence higher than students' writing ability. It proved that the students' intelligence quotient (IQ) correlates with their writing ability. It can be seen from the result of descriptive statistics calculation, the result of the mean score and standard deviation (SD).

Refer to the value of data in the classroom students have fewer scores. Of course, it was difficult for students to express their ideas on a piece of paper. In this study, the present researcher found the score of students' intelligence quotient, and their writing ability was balanced.

The statement above supported by the theory of Gardner and Lambert in Denji (2012), he said there is a link between general intelligence and second language learning ability. It shows that writing as a part of language learning correlates with intelligence. Besides, Emily (2015) states IQ includes component skills of analyzing arguments, sentences, making inferences using inductive or deduct reasoning until to explain process writing as a method for making writing ideas.

The result of this study is the key to answer the problem of this study, based on discussion above the present researcher found a significance correlation between students' intelligence quotient (IQ) and their writing ability. intelligence quotient (IQ) was

significance for writing ability because writing result was significance of the intelligence quotient (IQ) for making writing. Students' intelligence quotient (IQ) was determined kind of ideas in students' writing. Thus, there was a significant correlation between students' IQ and their writing ability. IQ was the significance of writing ability because writing results was the significance of the IQ for making writing. Students' IQ determined the kind of ideas in their writing.

According to the discussion above the researcher notice that high score of IQ is not proving the high score of writing ability also. It means there are some factors can influence IQ and writing ability of students. Despite some students got high score in writing ability but their score in IQ test can be low. Beside, writing ability is one of components that make the students' IQ to be increasing. The result of this research was supported by Gardner and Lambert theory in Denji, (2012) general intelligence and second language learning ability influence each other, it means that both of them have a link. Gardner also stated in Madkour et al., (2016) about writing is one of the parts of linguistic intelligence. It seems that writing as a part of language learning correlates with intelligence.

Furthermore, the quality of students' writing ability is influenced by some factors such as reading and listening. Meanwhile, the quality of students' IQ is influenced by reading, listening, speaking, counting, watching, and others. It shows the quality of IQ is influenced by more factors then writing ability. However, the quality of students' writing ability depends on learning strategy that is chosen by students to increase their ability in writing.

In brief, this research answers a question of the research "Is there any positive correlation between students' Intelligence Quotient (IQ) and their writing ability for the eighth graders of *Mts Ihya' Ulumuddin* in the school year 2016-2017?". The answer is there was a positive correlation in modest category as a correlation coefficient, in can be seen by the result of the correlation coefficient was .403 at  $p = .046$ . The category of correlation coefficient was gained from Moedjito's formula to the criteria below:

Table. 2 Correlation coefficients and their category

<b>Correlation Coefficient</b>	<b>Category</b>
.90 - 1.00	Very high
.70 - .89	High
.40 - .69	Modest
.20 - .39	Low
.00 - .19	Very low

Adopted from (Moedjito, 2014)

Forward, here the result of the previous researches, first was done by Maulida (2003) entitled *The Correlation between Students' Intelligence Quotient and Their Speaking Ability in The Third Year of SMU Widya Dharma Turen-Malang 2002-2003*. The result of the first previous research was "there was a positive correlation between students' IQ and their speaking ability in the third year of SMU Widya Dharma Turen- Malang 2002-2003". The correlation can be seen from r-value was greater than r-table ( $r\text{-value} = .508 > r\text{-table} = .264$ ). Not all of the students with high IQ have high grade in their speaking and not all of students with low IQ have low grade in their speaking too. Based on the results above, there are some students with high IQ but have low grade in speaking and there are some students with low IQ but have high grade in speaking. Based on the result of first previous research can be concluded that there is a moderate correlation between the students' IQ and their speaking ability.

The second previous research was done by Rahmawati (2016) entitled *The Correlation between Students' Intelligence Quotient (IQ) and Students' English*

Achievement (A Study at Tenth Grade Students' of *SMKN 9 Padang*). The result of second previous research was "there is any correlation between students' IQ and students' English achievement". It can be seen from the value of that  $r$ -calculated (0.48) higher than  $r$ -table (0.367) in the degree of freedom ( $df$ )  $n-2$  and the level significance ( $\alpha$ ) 0.05. The data shows correlation was quite strong, it means that there is any correlation but it is not main factor which influence students' achievement. The variables testing showed that the students with has lower IQ score do not always get lower score in English achievement and the students with higher IQ score also do not guarantee that they will get higher score in English achievement. (Esam, A. A. J. 2018). Because, beside intellectual intelligence, people also have another factors which also believe can influence student's achievement.

Based on the result of this research and the previous researches the differences among the researches can be seen from the number of the correlation coefficient, the category (term) of correlation between the variables among the researches, and the factors that influence the variables in each research.

## **CONCLUSION**

Based on the result and discussion can be concluded and found examining the details of the Bivariate correlation output and referring to propose the hypothesis. There is a significant correlation between students' IQ and their writing ability,  $r .403$  at  $p = .046$ . It means there is a significant correlation between students' IQ and their writing ability for the eighth graders of *Mts Ihya' Ulumuddin* in The School Year 2016-2017. The further researcher suggests investigating similar problems especially about students' IQ and their writing ability but using a different instrument.

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## **AUTHORS CONTRIBUTION STATEMENTS**

This research has a full contribution especially for the entire element in *MTs. Ihya' Ulumuddin*. The head master of the school is able to use the result of this research as the evaluation for the teachers to develop their teaching strategy especially in teaching students to write well in every literature. Based on the students' writing score, the English teachers have to give more attention and treatment to the students with low IQ and the students with high IQ who have difficulties in writing so they are able to increase their writing ability. Lattermost based on the factors that were found by the present researchers, the teachers should discover the factors which may cause the students have low grade in their study or have difficulties in their study and support them to reach their optimal grade.

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