

INTELLIGENCE QUOTIENT (IQ) AS A PREDICTOR OF READING COMPREHENSION AND WRITING ACHIEVEMENT OF EFL LEARNERS

Ary Setya B. Ningrum & Rohmat Agung Wibowo

State College for Islamic Studies (STAIN) Kediri, Indonesia

ary_oyesip@yahoo.com & agunk.rochmat@gmail.com

Abstract: This study aimed at investigating Intelligent Quotient (IQ) as a predictor of reading comprehension and writing achievement as well as to correlate the students' reading comprehension with their writing achievement. The participant of the study were 32 senior high school Indonesian students. There are three instruments used in this study, those are IQ test, reading comprehension test, and writing test. Upon obtaining the whole data needed, Pearson Product Moment formula was employed to determine the correlation of IQ with reading comprehension and writing achievement as well as reading comprehension with writing achievement. The result of this study revealed that IQ made significant contribution in predicting reading comprehension (23.42%) and writing achievement (16.08%). In addition, the correlation coefficient of reading comprehension and writing achievement shows that they are moderately correlated ($r=.587$), meaning that reading comprehension contributes as many as 34.45% to writing achievement.

Keywords: Intelligence Quotient (IQ), reading, writing

INTRODUCTION

Intelligence undoubtedly correlates with every single aspect in our lives. One of the case as we know, success in educational institutions, students' achievement has been shown to be associated with high intelligence quotient (Brown, 2000). As students, they obviously need sufficient intelligence in order to study well. When

students have good intelligence, they will be easier to absorb or understand the materials given to them rather than those who have average or even low intelligence.

Yet, for some cases someone's IQ turn out not to be the main factor to their success in certain aspects. Still, the role of IQ especially for EFL learners contributes much or less to their academic performance in the class. A study conducted by Salehi & Sadighi (2012) on second and third grade students shows there is a positive correlation between intelligence score and students' achievement in learning English. Gardner holds that there is a connection between general intelligence and second language learning ability (Gardner & Lambert, 1972).

When intelligence comes to language learning which involves language skills, it can be a strong factor associated with EFL success. It is evident from the result of study conducted by Ghabanchi & Rastegar (2014) finding that Intelligence Quotient has positive correlation with reading comprehension ($r=.36$). Another study also shows that IQ has association with other skill such as writing. A study conducted by Falahati reveals that there is also significant correlation between IQ and writing.

Reading and writing as part of language learning have also a positive correlation each other. Researchers such as Belanger, 1987; Flood and Lapp, 1987; Kucer, 1987; Stotsky, 1983 (cited in Al-Saadat, 2004) have conducted study and revealed that there is strong relationships between reading and writing abilities in first language acquisition. It means that good readers tend to be good writers and good writers tend to be good readers. In the context of EFL, Al-Saadat (2004) found that reading and writing are highly correlated for both male students ($r=.73$) and female students ($r=.89$).

Krashen (1987 in Al-Saadat, 2004) holds that large amounts of self motivated reading is a source of second language learners' writing competence. Therefore, from mastering reading skill, a language learner should have had sufficient provisions to write. Kimberling, Wingate, Rosser, DiChara and Krashan (cited in Krashan,

1984) found significant differences between good writers and poor writers. Good writers reported have more pleasure reading at all ages, and especially during high school years, yet not one poor writer reported "a lot" of pleasure reading during high school.

Based on the statements above the objectives of this study is to investigating the correlation of Intelligence Quotient (IQ) with reading comprehension and students' writing achievement. By figuring out which one of reading comprehension or writing achievement which IQ tends to determine the greater correlation to as well as which one of IQ and reading comprehension contributes more to writing achievement, we can tell which factor should be honed more in order to advance the students' writing achievement.

In keeping with the purpose of this study, the following questions are postulated:

- a. Is there any significant correlation between IQ and reading comprehension achievement?
- b. Is there any significant correlation between IQ and writing achievement?
- c. Is there any significant correlation between reading comprehension achievement and writing achievement?
- d. Which one of reading comprehension or writing achievement does Intelligence Quotient (IQ) have closer correlation with?

LITERATURE REVIEW

Intelligence Quotient (IQ)

According to Ellis (2008), Intelligence is "the general set of cognitive abilities involved in performing a wide range of learning tasks"(p.649). Meanwhile, Gardner (1999) defines intelligence widely as a "biopsychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture" (pp. 33-34). The term 'intelligence' has traditionally been used to refer to performance on certain kinds of test which usually measured logical and verbal intelligences (Brown, 2000). The test is so called Intelligent Quotient (IQ) test.

Intelligence quotient (IQ) is an age-related measure of intelligence level and is described as 100 times the mental age. The word 'quotient' means the result of dividing one quantity by another, and a definition of intelligence is mental ability or quickness of mind (Carter, 2005). Wechsler (1958 in Ghabanchi & Rastegar, 2014) defines Intelligence quotient (IQ) as "the global capacity to act purposefully, to think rationally, and to deal effectively with one's environment" (p.34). For many years, the results of IQ tests are considered as the predictor of students' achievement.

By the time goes on, it is found out that human has more than one intelligences. According to Gardner (1999), intelligence is more than IQ because the IQ test only measures logical and verbal intelligences. According to Gardner individuals are capable of processing information in at least seven different ways; each individual varies in the degree of skill possessed in each of these intelligences. He identifies seven categories of skills and abilities which he considers to be individual intelligences: linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal and intrapersonal (Maftoon & Sarem, 2012; Zarei & Afshar, 2014). Later on he added an eight and a ninth type to the list namely naturalistic and existential intelligences.

Reading Comprehension

As one of the four language skills, reading is considered as the most helpful and important skill for students. Most information gained by students are coming from their reading activities. Smith (1982) describes reading as a process that involves both the extraction and supplying of information. The result of reading activities enables us to understand concepts and point of view and to integrate them in our knowledge.

Several studies conducted reveal that reading is a complex mental activity process that is not just related to get meaning from the text, but it is a process involving several mental activities that change based on reader's purposes (Grabe, 1991; Kim & Goetz, 1995; Kucer,

2005; Pang, Muaka, Bernhardt, & Kamil, 2003; Pulido, 2003). It means that in reading activities there are process which is highly involving different sub-skills in activating mental awareness in understanding and comprehending the text.

Some believes that IQ has closely related in determining students' achievement in reading. Evidence from the study conducted by Ghabanchi & Rastegar (2014) yields that Intelligence Quotient has positive correlation with reading comprehension. They conducted the study to 55 junior and senior undergraduate students majoring in English Literature and English Translation. The main outcome of study is that the relationship between IQ and reading comprehension proficiency ($r=.36$) is stronger than the relationship between EQ and reading comprehension proficiency ($r=.19$).

Writing and Texts Genre

Writing is one of language skills that belongs to every language existing in this world. When we write, we make use of our knowledge and our experience as readers to compose the written text. While many arguments for assuming that reading influences writing, or writing influences reading, or they interactively influence each other; some researcher such as Edelsky, 1982; Hudelson, 1984; Harste, Woodward, and Burke, 1984; Spack, 1985; Hansen, 1987 (cited in Zamel, 1992) hold that writing is a reason that makes us to read rather than the other way around. In line with those statement Krashan (1984) pointed out that increasing reading is potentially be more effective in producing gains in writing than increasing writing frequency.

A part from which one comes first, Carson et al., (1990) suggest that the interaction between reading and writing is complex. Input in second language would play a significant role in developing the learners' skills. Reading input likely to affects the development of writing and reading abilities and/or writing input affects the development of reading and writing abilities. A study conducted by Al-Saadat (2004) has confirmed this. The study has shown strong

relationship between reading and writing across gender differences. They are highly correlated for both male and female students; they are $r = .73$ and $r = .89$, respectively. It means that good readers tend to be good writers and good writer tend to be good readers.

In Indonesia the teaching of English as A Foreign Language as a subject matter at school is taught based on genres of the texts. They are narrative, recount, procedure, descriptive, news item, report, analytical exposition, hortatory exposition, spoof, explanation, discussion, and review text (Geraldine et al., 2014). In this present study the participant are senior high school students that are in processing learning hortatory exposition text.

Hortatory exposition text is a type of spoken or written text that is intended to explain a certain issue and then persuade the listeners or readers by giving recommendation toward the issue. In learning hortatory exposition text, the students learn how to share opinions, ideas or arguments in form of writing or speaking. The students are required to have the sufficient knowledge to support their ideas about the certain topic.

The generic structure of hortatory exposition usually has three components: thesis, arguments and recommendation. Thesis is a statement or announcement of issue concern. Arguments show reasons for concern that will lead to recommendation. Recommendation includes statement of what should or should not happen or be done based on the given arguments.

METHOD

This study employs Correlational Research Design. Correlational Research Design is specialized in figuring out the correlation or relationship between two or more continuous variables, like students' IQ and their reading comprehension and writing achievement, in which this present study is working on.

Participants of this study are 32 students (8 male and 24 female) of state senior high school in Indonesia (SMAN 4 Kediri). They are in the eleventh grade of SMAN 4 Kediri.

There are three instruments utilized in this current study. Those are IQ test, reading test, and writing test. As for this study, the data of students' IQ score are taken from IQ test conducted by *Pusat Terapan Psikologi Pendidikan* (a Psychology education center). It is the legal institution chosen by SMAN 4 to conduct the IQ test for their students.

Reading comprehension test in this study is composed of a hortatory text as a source to assess the students' comprehension. There are 30 items in the form of multiple choice with five options of answer that follow each question. As for the scoring, each correct item is worth 1 (one) point. There will be 30 points when all of the questions are answered correctly.

There are ten indicators (with three questions each) used in testing the student's comprehension in reading. They are identifying topic, main idea, factual information, explicit information, implicit information, references, word meaning, purpose, generic structure and language feature. The time allocated for reading comprehension test is 90 minutes.

Based on the reliability and validity, the items used in the reading comprehension test has fulfilled the requirements. By utilizing Kuder Recharadson formula 20 (KR20), the reliability evidence for the reading test is .78. The test also meet two requirements of validity; they are suitable level of difficulty in which there are 11 items which are categorized fairly easy and the other 19 items are considered easy since the index of difficulty lies between 0.71-1.00, and the index of discrimination lies between 0.25-0.38, it means that the items used in the test is fair enough to distinguish between the students of the upper group and the students of lower group.

Writing test in this study is in the form of essay. The students are asked to compose a hortatory exposition text. The allotted time is 90 minutes to finish this test. There are four scoring aspects used as the criteria of good writing. Those are generic structure, developing

idea, accuracy and mechanics. The score of each aspect point lies from 1-5.

RESULTS AND DISCUSSION

There are three main data obtained in this study. Those are the students' IQ score, the result of reading comprehension achievement, the result of writing achievement.

Students' IQ Score

IQ score is the result of students' intelligence level which can be known from the test conducted by Psychologists. As for this study, the data of students' IQ score are collected from IQ test conducted by **Pusat Terapan Psikologi Pendidikan** (a Psychology education center). In this study, the researcher utilizes SPSS 21.0 to deal with computing and analyzing the data.

Table 1 The Statistic of Students' IQ Score

IQ	N*	Range	Minimum	Maximum	Sum	Mean	Std. Deviation
	32	28	98	126	3585	112.03	7.567

*Total students involved in the present study

Based on the data above, we can see that the mean of the students' IQ score is 112. The lowest score of the IQ score is 98 and the highest score is 126. The interval between the highest score and the lowest score is 28. It means that the gap between the student who has highest IQ score and lowest IQ score is not too far.

Table 2 The Frequency Distribution of Students' IQ Score Based on the IQ Level

	Average (90 - 109)	High Average (110 - 119)	Superior (120 - 129)	Total
N*	12	15	5	32
N (%)**	37.50	46.88	15.63	100

*Number of students

**Number of students in percent

Table 2 presents that almost half of students taking a part in this study have “High Average” IQ level. This level of IQ lies from 110 - 119 and there are 46.88% or 15 students who have this “High Average” IQ level. There is about 37.5% or 12 students whose IQ lie among 90 - 109 or in “Average” level of intelligence. There is only 5 students or 15.63% have “Superior” intelligence. To get better insight of students’ IQ score, see the chart as follow.

Students’ Reading Comprehension Achievement

The data of reading comprehension achievement is presented as follows.

Table 3 Students’ Reading Comprehension Achievement

Reading	N	Range	Minimum	Maximum	Sum	Mean	Sd
Comp.	32	47.00	50	97	2313	72.2813	16.028

Based on the data above, we can see that the mean of the students’ reading comprehension test is 72.28. The lowest score of students’ reading comprehension is 50 and the highest score is 97. The interval between the highest score and the lowest score is 47. It means that the gap between the student who has highest and lowest reading comprehension score is quite far.

The students, whose score is higher than 72.28 are 16 students or about 50% while the students who get score lower than the mean are also 16 students or about 50%. It indicates that half of students have enough comprehension in reading hortatory exposition text and the others have good enough comprehension in reading hortatory exposition text.

There are 30 items in the reading test. The items covers ten indicators which are used to test the students’ comprehension in reading a text. They are topic, main idea, factual information, explicit information, implicit information, reference, word meaning, purpose, generic structure and language feature.

The chart above present the general result of each indicators covered in the item of reading test used to test the students' comprehension in reading a text. Beside the general result of each scoring aspect above, the researcher elaborated more each scoring aspect and the corresponding items which can be seen in the two following tables. Table 4 shows the scoring aspects of identifying topic, main idea, factual information, explicit information and implicit information. Table 5 shows the scoring aspects of identifying references, word meaning, purposes, generic structure and language feature used in the hortatory exposition text.

The first indicator that students have to master is identifying the topic. Topic is general image of the whole text. The questions which ask the topic are question no. 1, 11, and 21. Those who have question 1 answered correctly are about 75% or 24 students. There are 19 students or 59% who answer question 11 correctly and about 23 students or 72% can answer question 21 correctly. There are 75% or 24 students who pass or are capable to identify the topic of text. It indicates that most students already have a good comprehension to identify the topic of text.

The next indicator is identifying main idea. Main idea is the general point which is talked mostly in each paragraph. This indicator is found at question no. 2, 12 and 23. Based on the table above students who answer the question 2 correctly are about 34% or only 11 students. Those who have question 12 answered correctly are 69% or 22 students while students who answer question 23 correctly are 66% or 21 students. The students who pass this indicator are 63% or 20 students. It means that more than half of them have been able to identify the main idea of text.

The third indicator is identifying factual information. Factual information is the facts that are written in the text. The questions which ask the topic are question no. 3, 13 and 25. Those who have question 3 answered correctly are about 81% or 26 students. There are 17 students or 53% who answer question 13 correctly and about 28 students or 88% can answer question 25 correctly. There are also

Ningrum & Wibowo, Intelligence Quotient (IQ) as a Predictor of Reading Comprehension and Writing Achievement of EFL Learners

about 88% or 28 students who pass or are capable to identify the factual information of text. It can be interpreted that most students already have a good comprehension to identify the factual information of text.

Table 4 Reading Comprehension Scoring Aspect 1

NO	NIS	TOPIC			P*	MAIN IDEA			P	FACTUAL INFO.			P	EXPLICIT INFO.			P	IMPLICIT INFO.			P
		1	11	21	F**	2	12	23	F	3	13	25	F	4	14	26	F	5	15	27	F
1	8305	1	0	1	P	1	1	0	P	1	1	1	P	1	1	1	P	0	1	0	F
2	8333	0	0	0	F	0	0	0	F	1	0	0	F	1	1	1	P	0	0	1	F
3	8349	1	0	1	P	0	1	1	P	1	0	1	P	1	1	1	P	1	1	1	P
4	8373	1	1	1	P	1	1	1	P	1	0	1	P	1	0	1	P	0	1	1	P
5	8379	0	0	1	F	0	0	1	F	1	0	1	P	1	1	1	P	1	1	1	P
6	8393	0	1	0	F	1	1	1	P	1	1	0	P	0	0	0	F	0	1	1	P
7	8394	1	0	0	F	0	1	1	P	0	0	0	F	0	1	1	P	0	1	0	F
8	8398	1	1	1	P	0	0	0	F	1	0	1	P	1	1	0	P	0	1	0	F
9	8404	1	1	1	P	0	1	1	P	1	1	1	P	1	1	1	P	1	1	1	P
10	8407	1	1	1	P	1	1	1	P	1	1	1	P	1	1	1	P	1	1	1	P
11	8423	1	0	1	P	1	1	0	P	0	0	1	F	0	0	1	F	0	1	1	P
12	8441	1	1	1	P	0	1	1	P	1	0	1	P	1	1	1	P	1	1	1	P
13	8447	1	1	1	P	1	1	1	P	1	1	1	P	1	1	1	P	1	0	1	P
14	8460	1	1	1	P	0	1	1	P	1	1	1	P	1	0	1	P	0	1	1	P
15	8489	1	0	1	P	0	1	0	F	1	0	1	P	1	1	0	P	0	0	1	F
16	8509	0	1	1	P	0	1	1	P	1	1	1	P	1	1	1	P	0	1	1	P
17	8513	0	1	0	F	0	0	1	F	0	1	1	P	1	0	1	P	1	1	0	P
18	8525	0	1	0	F	0	0	0	F	1	0	1	P	1	1	1	P	1	1	1	P
19	8537	1	0	1	P	0	0	1	F	0	1	1	P	0	1	1	P	1	0	0	F
20	8542	0	0	1	F	0	1	0	F	1	1	1	P	0	0	1	F	0	0	1	F
21	8558	1	0	1	P	1	1	0	P	1	1	1	P	1	1	1	P	0	1	1	P
22	8567	1	1	0	P	0	0	1	F	1	1	1	P	1	1	1	P	1	1	1	P
23	8575	1	0	1	P	0	1	1	P	1	1	1	P	1	1	1	P	1	1	1	P
24	8577	1	0	1	P	0	1	0	F	1	1	0	P	1	1	1	P	0	0	1	F
25	8578	1	0	0	F	0	1	1	P	0	0	0	F	1	0	1	P	0	1	0	F
26	8579	1	1	1	P	0	1	1	P	1	1	1	P	1	1	1	P	1	1	1	P
27	8596	1	1	0	P	1	1	1	P	1	0	1	P	0	1	1	P	1	1	1	P
28	8604	0	1	1	P	0	1	1	P	1	0	1	P	1	1	0	P	0	1	1	P
29	8615	1	1	1	P	1	1	0	P	1	1	1	P	1	1	1	P	1	1	1	P
30	8628	1	1	1	P	1	0	1	P	1	0	1	P	1	1	1	P	0	1	1	P
31	8629	1	1	0	P	0	0	1	F	1	0	1	P	1	0	1	P	1	1	1	P
32	8630	1	1	1	P	1	0	0	F	0	1	1	P	0	0	0	F	0	1	1	P
TOTAL		24	19	23	24	11	22	21	20	26	17	28	28	25	23	27	28	15	26	26	23
TOTAL (%)		75	59	72	75	34	69	66	63	81	53	88	88	78	72	84	88	47	81	81	72

* Pass **Failed

The fourth indicator is identifying explicit information. Explicit information is stated information that appear in the text. This indicator can be found at question no. 4, 14 and 26. Based on the table

above students who answer the question 4 correctly are about 78% or 25 students. Those who have question 14 answered correctly are 72% or 23 students while students who answer question 26 correctly are 84% or 27 students. The students who pass this indicator are about 28% or 28 students. It means that most of them have been capable to identify the explicit information of text.

The following indicator is identifying implicit information. Implicit information is information that is not stated in the text but can be obtained through certain information available in the text. The questions which ask the topic are question no. 5, 15 and 27. Those who have question 5 answered correctly are about 47% or 15 students. There are 26 students or 81% who answer question 15 correctly and also about 26 students or 81% can answer question 27 correctly. There are 72% or 23 students who pass or are capable to identify the factual information of text. It can be inferred then that most students already have a good comprehension to identify the implicit information of text.

The sixth indicator that students have to master is identifying the reference. Reference is pronoun which entity does it refer to. The questions which ask the reference are question no. 7, 17 and 24. Those who have question 7 answered correctly are about 75% or 24 students. There are 25 students or 78% who answer question 17 correctly and about 21 students or 66% can answer question 24 correctly. There are 78% or 25 students who pass or are capable to identify the reference. It means that all students already have really good comprehension to identify reference.

The next indicator is identifying word meaning. Word meaning can be in the form of definition, synonym or close meaning or antonym. This indicator is found at question no. 6, 16, and 22. Based on the table above students who answer the question 6 correctly are about 75% or 24 students. Those who have question 16 answered correctly are 88% or 28 students while students who answer question 22 correctly are 59% or 19 students. The students who pass

Ningrum & Wibowo, Intelligence Quotient (IQ) as a Predictor of Reading Comprehension and Writing Achievement of EFL Learners

this indicator are about 81% or 26 students. It indicates that most of them who capable to identify the word meaning of text.

Table 5 Scoring Aspect 2 of Reading Comprehension

NO	NIS	REFERENCES			P*	W. MEANING			P	PURPOSE			P	G. STRUCTURE			P	L. FEATURE			P
		7	17	24	F**	6	16	22	F	8	18	28	F	9	19	29	F	10	20	30	F
1	8305	0	1	1	P	0	1	1	P	1	1	1	P	1	1	1	P	1	1	0	P
2	8333	0	1	1	P	1	1	0	P	1	1	1	P	0	1	0	F	1	1	0	P
3	8349	1	1	0	P	1	1	0	P	1	1	1	P	1	1	1	P	1	1	1	P
4	8373	1	1	1	P	1	1	0	P	1	1	1	P	1	1	1	P	0	1	1	P
5	8379	1	1	0	P	1	1	0	P	0	1	0	F	1	1	1	P	0	0	0	F
6	8393	0	1	1	P	0	0	1	F	0	0	1	F	1	0	1	P	0	1	0	F
7	8394	1	0	0	F	1	1	1	P	1	1	1	P	0	1	1	P	1	1	1	P
8	8398	1	0	0	F	0	1	0	F	1	1	1	P	1	1	0	P	1	0	1	P
9	8404	1	1	0	P	1	1	1	P	1	1	1	P	1	1	1	P	1	1	1	P
10	8407	1	1	1	P	0	1	1	P	1	1	1	P	1	1	1	P	0	1	1	P
11	8423	0	1	0	F	1	1	1	P	1	0	1	P	1	1	1	P	1	0	1	P
12	8441	1	1	1	P	1	1	0	P	1	1	1	P	1	1	1	P	0	0	0	F
13	8447	1	1	1	P	1	1	1	P	1	1	1	P	1	1	1	P	1	1	1	P
14	8460	1	1	1	P	1	1	1	P	1	1	1	P	1	1	1	P	0	1	1	P
15	8489	1	0	1	P	1	1	0	P	1	1	0	P	0	1	0	F	0	0	0	F
16	8509	1	1	1	P	1	1	1	P	0	1	0	F	1	1	1	P	1	1	1	P
17	8513	1	1	0	P	1	0	0	F	1	0	1	P	1	0	0	F	0	1	0	F
18	8525	1	0	1	P	1	1	1	P	0	1	0	F	0	1	1	P	0	1	0	F
19	8537	1	1	1	P	0	0	0	F	1	0	1	P	1	0	1	P	1	0	1	P
20	8542	1	0	0	F	1	1	1	P	1	1	0	P	1	1	0	P	0	0	1	F
21	8558	1	1	1	P	1	1	1	P	1	1	1	P	1	1	1	P	1	1	1	P
22	8567	1	1	1	P	1	1	0	P	1	1	1	P	1	1	1	P	1	1	1	P
23	8575	1	1	1	P	1	1	1	P	1	1	1	P	1	1	1	P	1	1	1	P
24	8577	0	1	1	P	0	1	1	P	1	1	1	P	1	1	1	P	1	1	0	P
25	8578	1	1	1	P	1	1	0	P	1	1	1	P	1	1	1	P	0	1	1	P
26	8579	1	0	0	F	1	1	1	P	1	1	1	P	1	1	1	P	1	1	1	P
27	8596	1	1	1	P	1	1	1	P	1	1	1	P	1	1	0	P	1	1	1	P
28	8604	0	0	0	F	0	1	0	F	0	1	0	F	1	1	0	P	1	1	1	P
29	8615	0	1	1	P	1	1	1	P	1	1	1	P	1	1	1	P	0	0	0	F
30	8628	1	1	1	P	1	1	1	P	1	1	1	P	1	1	0	P	1	0	1	P
31	8629	1	1	1	P	1	1	0	P	0	1	1	P	1	1	1	P	0	0	1	F
32	8630	0	1	0	F	0	0	1	F	1	0	1	P	1	0	1	P	0	0	1	F
TOTAL		24	25	21	25	24	28	19	26	26	27	26	27	28	28	24	29	18	21	22	22
TOTAL (%)		75	78	66	78	75	88	59	81	81	84	81	84	88	88	75	91	56	66	69	69

* Pass **Failed

The eighth indicator is identifying purpose of the text. Purpose of the text is the aim or writer's intention of writing the text. The questions which ask the topic are question no. 8, 18 and 28. Those who have question 8 answered correctly are about 81% or 26 students. 27 students or 84% answer question 18 correctly and about 26 students or 81% can answer question 28 correctly. There are 84% or 27

students who pass or are capable to identify the purpose of text. It can be concluded that most students already have a good comprehension to identify the purpose of text.

The ninth indicator is identifying generic structure. Generic structure is pattern of how a text is composed, since the text used in this study is a hortatory exposition text then the generic structure are: thesis, arguments and recommendation. This indicator can be found at question no. 9, 19 and 29. Based on the table above students who answer the question 9 correctly are about 88% or 28 students. Those who have question 19 answered correctly are also 88% or 28 students while students who answer question 29 correctly are 75% or 24 students. The students who pass this indicator are about 91% or 29 students. It means that most of the students have been capable to identify the generic structure of text.

The last indicator is identifying language feature. Language feature is a language which can be in the form of sentences, phrases or words used in the certain text. The questions which ask the language feature are question no. 10, 20 and 30. Those who have question 10 answered correctly are about 56% or 18 students. There are 21 students or 66% who answer question 20 correctly and about 22 students or 69% can answer question 30 correctly. There are also 69% or 22 students who pass or are capable to identify the language feature of text. It can be inferred that more than half of them already have a good comprehension to identify the language feature of text.

Students' Writing Achievement

Upon getting the students' writing scores, the researcher correlated the scores given by Rater 1 and Rater 2 in order to find out the reliability. By employing SPSS 21 it is found out that the correlation of score given by rater 1 and rater 2 is high ($r=.79$). It means that the score is reliable and valid. The statistic of the data is presented as follows:

Table 6 Students' Writing Achievement

Writing	N	Range	Minimum	Maximum	Sum	Mean	Std. Deviation
	32	18	70	88	2533	79.14	4.6

From table 6, we can see that the mean of the students' writing achievement is 79.14. The lowest score of students' writing achievement is 70 and the highest score is 88. The interval between the highest score and the lowest score is 18. It means that the gap between the student who has highest and lowest writing achievement score is close enough.

After learning the general data of students' writing achievement score, the data of students' writing achievement was then further analyzed using Microsoft Excel 2013 to get deeper insight of the students' writing for each scoring aspect.

Table 7 Writing Achievement Result of Each Scoring Aspects

	Generic Structure	Developing Idea	Accuracy	Mechanics
Mean	4.38	4.14	3.53	3.78
Converted Score	87.50	82.81	70.63	75.63

From the aspect of generic idea, most the students have been able to compose a hortatory exposition text with all three generic structures composed very well with the mean ($\bar{x} = 4.38$). The same case goes for developing idea. The mean is a little bit different with generic structure, which is 4.14. Most students have been able to develop their idea very well. As for the accuracy, most students are already good in arranging the sentence and choosing the appropriate word with the mean is 3.53. Most students also do it well in dealing with punctuation and capitalization and other writing mechanics verified by the mean equals to 3.78.

Generic structure is important to exist in the text since it will enable the reader identify the kind of text they read. By clearly stated

the generic structure, the readers will get the point of text faster. Table 8 presents the frequency distribution to give clearer comprehension of how many students have been able to apply the generic structure into their writing.

Table 8 Frequency Distribution of Generic Structure

	Generic Structure	
	N*	N (%)**
5	7	21.875
4.5	10	31.25
4	15	46.875
3.5	0	0
3	0	0
2.5	0	0
2	0	0
1.5	0	0
1	0	0

*.Number of students

**. Number of students in percent

Developing idea is students' ability to develop their ideas by giving relevant examples or supporting sentence. The more relevant examples and supporting sentences provided the better the writing will become. Table 9 is provided to give clearer comprehension of how many students have been able to apply the developing idea into their writing.

Table 9 Frequency Distribution of Developing Idea

	Developing Idea	
	N*	N (%)**
5	3	9.375
4.5	11	34.375
4	12	37.5
3.5	4	12.5
3	2	6.25

2.5	0	0
2	0	0
1.5	0	0
1	0	0

*.Number of students

**. Number of students in percent

Accuracy includes word choices and grammatical use. This aspect plays the main role in writing. By selecting appropriate words and applying the grammar correctly, the message of the writer will reach the readers easily. Table 10 is displayed to give clearer comprehension of how many students have been able to apply the accuracy into their writing.

Table 10 Frequency Distribution of Accuracy

Accuracy		
	N*	N (%)**
5	0	0
4.5	2	6.25
4	9	28.125
3.5	11	34.375
3	9	28.125
2.5	1	3.125
2	0	0
1.5	0	0
1	0	0

*.Number of students

**. Number of students in percent

Mechanics is the way a text written or composed. Mechanics includes capitalization, punctuation and other writing mechanics. By using appropriate capitalization and punctuation, it will help the readers understand the content of the text well. Table 11 is presented to give clearer comprehension of how many students have been able to apply the mechanics into their writing.

Table 11 Frequency Distribution of Mechanics

Mechanics		
	N*	N (%)**
5	0	0
4.5	2	6.25
4	17	53.125
3.5	10	31.25
3	3	9.375
2.5	0	0
2	0	0
1.5	0	0
1	0	0

*.Number of students

** . Number of students in percent

The Description of the Result of the Data Analysis

To get further analysis of the data, the researcher compiled all the three variables in this study into one table below. Table 12 shows the data normality of each variable.

Table 12 One-Sample Kolmogorov-Smirnov Test of Each Variable

		IQ	Reading	Writing
N		32	32	32
Normal Parameters ^{a,b}	Mean	112.03	72.28	79.14
	Std. Deviation	7.567	16.028	4.693
Most Extreme Differences	Absolute	.138	.186	.229
	Positive	.136	.153	.124
	Negative	-.138	-.186	-.229
Kolmogorov-Smirnov Z		.778	1.050	1.295
Asymp. Sig. (2-tailed)		.580	.220	.070
a. Test distribution is Normal.				
b. Calculated from data.				

The value of **Asymp. Sig.** (2-tailed) presented in the table above shows that each variable which are IQ, reading comprehension and writing achievement have normal data distribution.

The Correlation between IQ and Reading Comprehension

Based on the table 13, the value of **Sig.** (2-tailed) is .005 which is lower than the significant level which is set at .05 ($p = .005 < .05$). It means that H_0 is rejected and it can be interpreted that there is significant correlation between Intelligence Quotient (IQ) and reading comprehension achievement of EFL learners.

Table 13 The Correlation between IQ and EFL Learners' Reading Comprehension

		IQ	Reading
IQ	Pearson Correlation	1	.484**
	Sig. (2-tailed)		.005
	N	32	32
Reading	Pearson Correlation	.484**	1
	Sig. (2-tailed)	.005	
	N	32	32

** . Correlation is significant at the 0.01 level (2-tailed).

From the table above, the Pearson Correlation coefficient of IQ and reading comprehension achievement of EFL learners' is 0.484 or ($r=0.484$). Referring to the coefficient correlation index, the correlation is average. The correlation coefficient of the table above shows positive correlation between IQ and reading comprehension achievement of EFL learners'. It means that the students who have high IQ tend to achieve high score in reading comprehension. So do those whose IQ is considered average or low tend to achieve low score. The result above means that IQ contributes as many as 23.42% to EFL learners' reading comprehension achievement, while the rest is determined by other variables.

This finding contrasts with the result of study conducted by Ghabanchi & Rastegar (2014). They found that IQ is weakly correlated with reading comprehension ($r=.36$). Despite the difference of

correlational coefficient of present study and the previous study, both results suggest that IQ has significant correlation with reading comprehension.

The Correlation between IQ and Writing Achievement

Based on the table 14, the value of **Sig.** (2-tailed) is .023. It means that H_0 is rejected as the significant value is lower than the significant level which is set at .05 ($\rho = .023 < .05$). Therefore, it can be concluded that there is significant correlation between Intelligence Quotient (IQ) and writing achievement of EFL learners'.

Table 14 The Correlation between IQ score and EFL Learners' Writing Achievement

		IQ	Writing
IQ	Pearson Correlation	1	.401*
	Sig. (2-tailed)		.023
	N	32	32
Writing	Pearson Correlation	.401*	1
	Sig. (2-tailed)	.023	
	N	32	32

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

From the table above, the Pearson Correlation coefficient of IQ and writing achievement of EFL learners' is .401 or ($r=.401$). Referring to the coefficient correlation index, the correlation is average. The correlation coefficient of the table above shows positive correlation between IQ and students' writing achievement. It means that the students who have high IQ tend to achieve high score in writing. And so do those whose IQ is considered average or low tend to achieve low score in writing. The result above means that IQ contributes as many as 16.08% to students' writing achievement, while the rest is determined by other variables.

This finding supports another similar study which was once conducted by Falahati. She was investigating the correlation between IQ and transitional words and expression used in writing. She found

that there is significant correlation between the two variables with $r=.60$. It indicates that IQ and transitional words and expression used in writing is highly correlated.

Aside from the correlation result above, the study conducted by Salehi & Sadighi (2012) on second and third grade students (182 participants) instead shows weak correlation between intelligence score and English test score ($r=.252$), intelligence score and vocabulary score ($r=.228$) and correlation between intelligence and grammar score ($r=.246$). This result suggests that intelligence score lowly affect the elementary students' achievement in learning English, especially for the second and third grader. Still, it has positive correlation, which indicates that there is a link between intelligence score and students' achievement in learning English.

The Correlation between Reading Comprehension and Writing Achievement

Based on the table 15, the value of **Sig.** (2-tailed) is .003. It means that H_0 is rejected since the significant value is lower than the significant level which is set at .05 ($\rho = .003 < .05$). Thus, it can be inferred that there is significant correlation between reading comprehension and writing achievement of EFL learners'.

Table 15 The Correlation between Reading Comprehension and Writing Achievement

		Reading	Writing
Reading	Pearson correlation	1	.587**
	Sig. (2-tailed)		.003
	N	32	32
Writing	Pearson correlation	.587**	1
	Sig. (2-tailed)	.003	
	N	32	32

****.** Correlation is significant at the 0.01 level (2-tailed).

From the table above, the Pearson Correlation coefficient of reading comprehension and EFL learners' writing achievement is .587 or ($r=.587$). Referring to the coefficient correlation index, the correlation is average. The correlation coefficient of the table above shows positive correlation between reading comprehension and EFL learners' writing achievement. It means that the students who have high score in reading comprehension test tend to achieve high score in writing; those whose reading comprehension test is low tend to achieve low score in writing. The result above means that reading comprehension contributes as many as 34.45% to EFL learners' writing achievement, while the rest is determined by other variables.

The findings shows that reading comprehension turns out to have average correlation to writing achievement with $r=.58$. This finding is a little bit different with the findings of a study conducted by Al-Saadat (2014). He found that both male and female students have high correlation between reading and their writing; they are ($r=0.73$) goes for the male students while ($r=0.89$) for female students.

Comparison between Correlation of IQ with Reading Comprehension and Writing Achievement

After the researcher figured out the correlation of IQ with reading comprehension and EFL learners' writing achievement, the researcher compared both the result of the correlation coefficient.

The table 16 shows that the correlation between IQ and reading comprehension is a little higher ($r=.484$) than correlation between IQ and EFL learners' writing achievement ($r=.401$). On the other words, Intelligence Quotient (IQ) tendency to affect EFL learners' reading comprehension achievement is higher than IQ does to EFL learners' writing achievement. While the correlation between reading comprehension and writing achievement shows that they are moderately correlated with the correlation coefficient value is .587 ($r=.587$).

Table 16 Correlation of IQ with Reading Comprehension and Writing Achievement

		IQ	Reading	Writing
IQ	Pearson Correlation	1	.484**	.401*
	Sig. (2-tailed)		.005	.023
	N	32	32	32
Reading	Pearson Correlation	.484**	1	.587**
	Sig. (2-tailed)	.005		.003
	N	32	32	32
Writing	Pearson Correlation	.401*	.587**	1
	Sig. (2-tailed)	.023	.003	
	N	32	32	32

** . Correlation is significant at the 0.01 level (2-tailed).

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

The contribution percentage of IQ to reading comprehension and writing can be used to determine which one reading comprehension or writing achievement that IQ contributes more to. Based on the calculation above the contribution of IQ to reading is 23.42% while the contribution of IQ to writing is 16.08%. It means that IQ obviously has more contribution to affect reading comprehension achievement rather than IQ does to writing achievement. Aside from that, reading comprehension turns out to contribute as many as 34.45 % to EFL learners' writing achievement.

These results indicate clearly the existence of strong relationship between students abilities in reading and their abilities in writing. This findings is in accordance with earlier findings of previous studies mentioned above which argued that input in reading affects the development of writing abilities and input in writing affects the development of reading abilities.

CONCLUSION

It is hoped this research will provide fruitfull insights into foreign language learning by showing that foreign language learning

is an extremely complex phenomenon that can be affected by many factors such as the intelligence studied in this research. In this present study, it is found out that the correlation between IQ and reading comprehension is a little higher ($r=.484$) than correlation between IQ and EFL learners' writing achievement ($r=.401$). On the other words, Intelligence Quotient (IQ) tendency to affect EFL learners' reading comprehension achievement is higher than IQ does to EFL learners' writing achievement. While the correlation between reading comprehension and writing achievement shows that they are moderately correlated with the correlation coefficient value is .587 ($r=.587$).

IQ or intelligence Quotient indeed has positive correlation to students' reading and writing achievement. However, the correlation coefficient of IQ to writing ($r=.401$) is lower than the correlation coefficient of reading comprehension to students' writing achievement ($r=.587$).

From this point, teachers should encourage their students especially who have average or even low IQ to not worry too much since reading comprehension turns out to contribute more to writing achievement. It confirms Krashan (1987 in Al-Saadat, 2004) claim that second language learners' writing competence derives from students' self motivated reading. That is why teacher also should have their children read a lot. Furthermore, students should get used themselves to read a lot. By reading a lot, they will enhance their reading skill in comprehending the information. It also can add up the students' vocabulary. Besides reading a lot, it is also important for students to practice their writing at home whenever they have leisure time. As it goes without saying that practices make perfect. By practicing regularly it will help them write well.

REFERENCES

Al-Saadat, Abdullah Ibrahim. (2004). Investigating the relationship of reading and writing abilities in the English language program at King Faisal University. *Scientific Journal of King*

Ningrum & Wibowo, Intelligence Quotient (IQ) as a Predictor of Reading Comprehension and Writing Achievement of EFL Learners

Faisal University (Humanities and Management Sciences), Vol. 5 No.1, 221-228.

- Belanger, J. (1987). *Theory and Research into Reading and Writing Connections: a critical review*. Reading – Canada – Lecture, 5,1, pp.10-18.
- Brown, H. D. (2000). *Principles of language learning and teaching (4th ed.)*. New York: Longman.
- Carson, J.E., P.I. Carrel, S. Silberstein, B. Kroll, and P.A. Kuehn. (1990). Reading – Writing Relationships in First and Second Language. *TESOL Quarterly*, 24, 2, pp.245-266.
- Carter, Philip. (2005). *The complete book of intelligence tests*. Chichester: John Wiley&Sons Ltd.
- Ellis, R. (2008). *The study of second language acquisition (2nd ed.)*. Oxford: Oxford University Press.
- Falahati, Reza. The Relationship between Students' IQ and Their Ability to Use Transitional Words and Expressions in Writing.
<https://journals.uvic.ca/index.php/WPLC/article/download/5160/2132>, accessed on August 10th, 2015.
- Flood, J., and D. Lapp. (1987). Reading and writing relationships: Assumptions and directions. In J. Squire (Ed.). *The dynamics of language learning*. pp. 9-26. Urbana ILL: National Conference on Research in English.
- Gardner, H. (1999). *Intelligence reframed*. New York: Basic Books.
- Gardner, R.C. & Lambert, W.E. (1972). *Attitudes and motivation in second language learning*. New York: Newbury House Publishers.

- Geraldine, Monitha et al. (2014). Teaching Writing Hortatory Exposition Text through Task-Based Language Teaching (TBLT). *Jurnal Pendidikan dan Pembelajaran*, Vol.3. No. 8.
- Ghabanchi, Zargham & Rastegar, Rabe'e. (2014). The Correlation of IQ and Emotional Intelligence with Reading Comprehension. *The Reading Matrix*, Vol. 14, No. 2, 135-144.
- Grabe, W. (1991). Current developments in second language reading research. *TESOL Quarterly*, 25, 375-406.
- Kim, Y., & Goetz, E. (1995). Children's Use of Orthographic and Contextual Information in Word Recognition and Comprehension. *The Varieties of Orthographic Knowledge*, Vol. 11, 205-249.
- Krashan, S. (1984). *Writing: research, theory and applications*. New York: Pergamon Press.
- Kucer, S. (2005). *Dimensions of Literacy: A conceptual base for the teaching of reading and writing*. Mahwah, NJ: Erlbaum.
- Kucer, S. (1987). The cognitive base of reading and writing: In J. Squire (Ed.) *The dynamics of language learning*. Pp.27-51. Urbana, IL: National Conference on Research in English.
- Maftoon, Parviz & Sarem, Saeid Najafi. (2012). The Realization of Gardner's Multiple Intelligences (MI) Theory in Second Language Acquisition (SLA). *Journal of Language Teaching and Research*. Vol. 3, No. 6.
- Pang, E. S., Muaka, A., Kamil, M. L., & Bernhardt, E. B. (2003). Teaching reading. *Educational Practices Series*, 12, 35-42.
- Pulido, D. C. (2003). Modeling the role of second language proficiency and topic familiarity in second language incidental vocabulary acquisition through reading. *Language Learning*, 54, 469-523.

Ningrum & Wibowo, Intelligence Quotient (IQ) as a Predictor of Reading Comprehension and Writing Achievement of EFL Learners

Salehi, Masoomah & Sadighi, Firoz. (2012). The Relationship between intelligence and foreign language learning, and the Role of Practice. *Journal of Language, Culture, and Translation (LCT)*, Vol. 1, No. 1, 33-48.

Smith, F. (1982). *Reading*. Cambridge: Cambridge University Press.

Stotsky, S. (1983). Research on Reading/Writing Relationship: A synthesis and suggested directions. *Language Arts*, 60, pp.627-642.

Weschler, D. (1958). *The measurement and appraisal of adult intelligence (4th Ed.)*. Baltimore, MD: Williams & Wilkins.

Zarei, A.A & Afshar, N.S (2014). Multiple intelligences as predictors of reading comprehension and vocabulary knowledge. *Indonesian Journal of Applied Linguistics*, Vol. 4 No. 1, pp.23-38.

Zamel, V. (1992). Writing One's Way into Reading. *TESOL Quarterly*, 26,3, pp. 463-485.