

The Influence of Intelligence Quotient (Iq) Towards the Speed-Reading Ability

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Abstract

This study deals with the influence of intelligence quotient (IQ) towards the speed-reading ability among high school students in Garut. It aims to reveal whether an individual's IQ influences his ability to read quickly. This quantitative study used correlational description methods. To gather the data, a test and documentation study were applied involving 40 high school students that were selected through probability sampling technique. The results of the study revealed: 1) Spearman correlation test was conducted due to non-normal data distribution, 2) the Spearman correlation test, Sig 0,754 > alfa 0,05, means IQ level had no significant influence towards students' speed reading ability, 3) Other factors contributing to the result might be related to: students' interest and motivation in reading as well as students' reading habit or activities that may distract them such as vocalisation, lips movements, head movements, regression, and sub-vocalisation.

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INTRODUCTION

The rapid development of science and technology becomes the main reason to improve competencies. The individual's competencies are supposed to be continuously improved to acquire broader and comprehensive insight.

The intelligence quotient (IQ) are considered to contribute in the competencies improvement. In general, IQ is positively related to various achievements including learning achievement factors (Guez et al., 2018). IQ is one of main components to diagnose mental retardation issues and inability to learn (Truscott & Frank, 2001). Students' learning achievement performed in the class is highly related to their intelligence level. Higher intelligence levels will likely attain higher achievement (Nauli Thaib, 2013). Intellectual intelligence is also related to cognitive intelligence, an ability to utilize mathematics-logics and languages (writing, reading, memorizing, counting, and answering) (Djaali; 2008).

Some studies describe intelligence quotient (IQ) as a psychometry to measure intelligence in understanding individual's academic achievement differences. However, the achievement in this context is limited to the cognitive ability that is less relevant to the real world problems (Ntolka & Papadatou-Pastou, 2018). The intelligence could be measured by Intelligence Quotient (IQ) test. Purwanto (2014) argued that the first to introduce IQ test was a French doctor, Alfred Binet, and his assistant, Simon. It was widely known as 'Binet-Simon test'. The test was formulated as follows.

$$IQ = \frac{MA}{CA} \times 100$$

Description:

MA: *Mental Age*

CA: *Chronological Age*

100: Constanta

Theoretically, the intelligence quotient (IQ) ranges from 0 to 200 which sets 100 as the average. According to Surya (2014), the intelligence classification is as follows.

Table 1. IQ level classification

No	Tingkat Kecerdasan	IQ
1	Genius	di atas 140
2	Gifted	130-139
3	Superior	120-129
4	Above average	110-119
5	Average / Normal	90-109
6	Below average	80-89
7	Dull	70-79
8	Moron	50-69
9	Idiot	di bawah 49

Based on the intelligence quotient (IQ) level classification above, several characteristics related to the individual's intelligence are as follows. Idiot (IQ 0-29) is those who are not able produce words or those who produce few and incomplete words; imbecile (IQ 30-49), they could learn languages, organize their own needs, and follow simple tasks and exercises; moron (mentally handicapped, mentally retarded) (IQ; 50-69), in particular circumstances exercises and good learning processes allow this group to acquire the ability to write, read, and calculate in

a simple way; dull/borderline (IQ 70-79), they generally have lower intelligence, but are able to maintain themselves and do the school tasks.

Below average (IQ 80-89), they might be able to finish the secondary school, but rather difficult to finish higher school level; Average (IQ 90-100), this group has the highest percentage of distribution and may portray most common people; Above average (IQ 110-119), this group may describe a normal people in the higher level; Superior (IQ 120-129), this group succeeds in the school works and academics;

Very superior/gifted (IQ 130-139), they are more competent at reading, much better at understanding abstract concept, numbering, and vocabulary mastery as well as acquire far wider insight than the group below them; Genius (IQ above 140), this group are able to solve and discover things without assistant or school. People classified into the group are Edison, Stuart Mill, Goethe, Einstein, and so on.

Intelligence is commonly associated with cleverness, competencies, sophisticated, or problem solving abilities. Regarding individual's differences, intelligence quotient (IQ) affects the real life problems solving and decision making of the explorative strategies. In addition, it is also related to how an individual selects and uses the strategies to memorize things. Nonetheless, the performance of lower-IQ students with excellent memory is better at cognitive and metacognitive aspects than higher-IQ students with poor memory (Cho, 2010). Individual's paradigm regarding the learning and special abilities need to be considered to explain the relationship between IQ and other skills, such as reading skills.

Does the reading process involve intelligence quotient (IQ)? Definitely yes. Reading is one of activities that involves intelligence quotient (IQ). We all can agree that reading is basically a thinking process. Edward L. Thorndike mentioned reading as thinking and reading as reasoning. It means that the reading process is actually a process in which an individual is trying to think and make a reason (Yuniati & Atmaja, 2021). Reading is a complex and complicated process. This complexity involves internal and external factors of the reader. Internal factors include IQ, interest, attitude, aptitude, motivation, and reading purpose (Yuniati & Atmaja, 2021). It is possible to read quickly, several words in a second. When reading each word, the reader is exploring his lexical knowledge through thousands words in the memory while proceeding the synaxis process to comprehend the text (Fujimaki et al., 2009).

The number of studies regarding the influence of intelligence quotient (IQ) towards

other abilities has been conducted, to mention Musaljon's (2015) that revealed positive correlation of IQ towards vocabulary mastery and comprehension. Cho (2010) studied the role of IQ as a cognitive strategy to learn information in a map. The study showed that IQ is correlated with the selection and application of memorizing techniques by the students.

Speed reading involves two aspects of reading, those are the speed and comprehension (Dibia, 2015). Visual speed (eye movement) while reading is supposed to be positively related to the comprehension skill. Reading is considered as an analysis process to find out the idea of the text. In other words, the message or information provided in the text still needs analysing through creative and critical thinking (Yuniati & Atmaja, 2021).

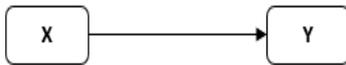
Speed reading is a reading process to comprehend the idea of the text in a quite short time (Januarti et al., 2016). The reader does not have to read every word in the text rather than focusing on the important sentences that are necessary to obtain the information needed (Pauk, 1964). Besides, speed reading requires readers to quickly draw conclusion from a text or find particular information with their knowledge. It implies that prior knowledge might help readers to develop their comprehension without reading the whole text (Carver, 1989). Nevertheless, the reading technique might also contribute. Suyatno argued some indicators to focus on while speed reading involve avoiding mumbling, focusing on the text, avoiding head movement and utilizing the eyes movement instead as well as practising (Januarti et al., 2016; Kartini et al., 2021).

The speed reading indicator is described as word per minutes (wpm). In the international standard, an elementary school student may acquire 200 wpm, a junior high school 200-250 wpm; a senior high school 250-325 wpm, and a university student 325-400 wpm with at least 70% comprehension score. In Indonesia, the effective speed reading is classified as follows: elementary school 140 wpm, junior high school 140-175 wpm, high school 175-245 wpm, and university level 245-280 wpm (Mulyati, 2003).

Based on the studies above, this study tries to investigate the influence of intelligence quotient (IQ) towards students' speed reading ability. The gap of this study lies on the correlation between intelligence quotient (IQ) variable towards speed reading and supportive factors in the speed reading process.

METHOD

This descriptive study used correlational method through quantitative approach. This model involves one independent variable, labelled by X, and a dependent variable, Y.



Picture 1: the relationship between X and Y

X = INTELLIGENCE

Y= THE COMPREHENSION ABILITY

The sample selection utilized probability random sampling model through lottery. The data were obtained through test and document study. The test was used to measure the students' speed reading ability and the students' intelligence quotient (IQ) level was obtained from *Tes Psikologi* results conducted by *Smart Pysikotes* Bandung. The analysis process was conducted through normality test and Spearman correlational test in SPSS.

RESULTS AND DISCUSSION

The analysis of independent variable (X) and dependent variable (Y) is illustrated in this section, X as IQ and Y as the speed reading ability. The table below is the data of the X variable. The X variable is the high school students' IQ scores taken from the IQ test by Smart psikotes UIN Bandung. The result is summarized in the table 2.

Table 2. Intelligence level of high school students 2019/2020

No.	Classification	IQ	Frequency	Percentage (%)
1	Average	90-109	13	32.5
2	Above average	110-119	7	17.5
3	Superior	120-129	9	22.5
4	Gifted	130-139	11	27.5
Total			40	100

Based on the table, 11 students (27,5%) at 130-139 are classified as gifted; 9 students (22,5%) at 120-129 classified into superior; 7 students (17,5%) at 110-119 classified into above

average; and 13 students (32,5%) at 90-109 classified into normal. The raw scores of students' intelligence quotient (IQ) distribution are illustrated in the diagram below.

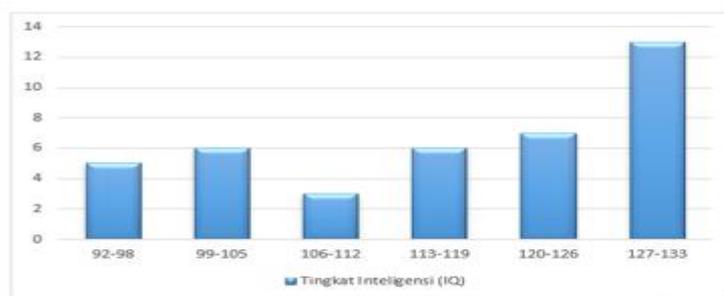


Diagram 1: IQ level distribution

Y variable is the data illustrating the effective speed reading ability of the high school students 2019/2020. The data were taken from

the speed reading test and comprehension test. The data are shown in the table 3.

Table 3. Students' effective speed reading score

No	Score	Frequency	Percentage
1	339 - 361	2	5%
2	316 – 338	0	0%
3	293 - 315	1	2.5%
4	270 – 292	2	5%
5	247 – 269	4	10%
6	224 – 246	4	10%
7	201 – 223	5	12.5%
8	178 – 200	4	10%
9	155 – 177	1	2.5%
10	132 – 154	5	12.5%
11	109 – 131	5	12.5%
12	86 – 108	4	10%
13	63-85	3	7.5%
	Total	40	100%

The data show the speed reading ability through the calculation of the effective reading score and the comprehension test. From the table, the students are described as follows: 3 students with 63-85 points (7,5%); 4 students with 86-108 points (10%); 5 students with 109-131 points (12,5%); 5 students with 132-154 points (12,5%); 1 student with 155-177 (2,5%); 4 students with 178-200 points (10%); 5 students with 201-223 points (12,5%); 4 students with 224-246 (10%); 4 students with 247-269 (10%); 2 students with 270-292 points (5%); 1 students with 293-315 points (2,5%); no student with 316-338 points (0%); and 2 students with 339-361 points (5%).

According to the result in the table 3, there are three students included into the lowest level and two students in the highest level. There is no significant differences among the students' scores. In other words, the speed reading ability

of the students are in the average level and categorized into averaged or standard. The score for the KEM test in table 3 also shows that everyone has different reading habits and reading intensity, so there are many factors that affect reading speed. For people who like to read, they can add a lot of new vocabulary to make it easier for them to know the meaning of a reading. Unlike the case with people who rarely read, he will have difficulty understanding the meaning of certain vocabulary because of limited vocabulary.

Based on the data collected from the two variables, then the data is processed first with normality testing. This normality test uses the Lilliefors test because the data is discrete data, namely data in the form of a distribution. Based on the results of calculations using SPSS at the 95% confidence level ($\alpha 0.05$), the results can be seen in table 4.

Tabel 4. Normality Test Results
Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
KemampuanEfektifMembaca	.123	40	.131	.839	40	.000
IQ	.135	40	.066	.911	40	.004

Spearman correlational test as follows:

Tabel 5. Spearman’s Correlation Test Results

			Kemampuan Efektif Membaca	IQ
Spearman's rho	Kemampuan Efektif Membaca	Correlation Coefficient	1.000	.049
		Sig. (2-tailed)	.	.764
		N	40	40
	IQ	Correlation Coefficient	.049	1.000
		Sig. (2-tailed)	.764	.
		N	40	40

The correlational test results Sig. 0.764 the variable Y (speed reading). Some samples to bigger than alpha 0.5. It means the variable X illustrate the analysis results are in the table 6. intelligence quotient (IQ) has no influence on

Table 6. IQ level and effective speed reading scores

No.	Participants	IQ	Speed reading scores
1.	Student-12	133	64
2.	Student -17	133	178
3.	Student -18	102	615
4.	Student -39	102	361
5.	Student -31	92	76

The explanation in table 6 is described as follows; the first student with intelligence quotient (IQ) 133 and score 64 is included into those who are able to think and solve the problems showed in the numerical forms as well as acquire visual and observing skills or the ability to construct mental portrays from the object patterns. The second student with IQ 133 and score 178 have the abilities previously mentioned and also the ability to do the tasks related to bookkeeping, saving, and checking.

Meanwhile, the third student with IQ 102 and score 615 is included into those who are able to think and solve the problems showed in the lexical forms as well as acquire visualization and observing skills as well as the ability to construct mental portrays from the object patterns and its dimension. The fourth student with IQ 102 and score 361 is included into those who are able to think and solve the problems showed in the lexical forms, comprehend the general principles of science, and understand the procedure of simple machines and other utilities. The fifth student with IQ 92 and score 76 is

included into those who are average and able to do simple tasks.

There is no “genius” class from the sample. The highest intelligence quotient (IQ) score is at 133 classified as superior and the lowest is at 92 classified as normal or average. The highest speed reading score is at 361 wpm and the lowest is at 63 wpm. Meanwhile, the average speed reading score from the sample is 193 wpm. According to minimal score of speed reading in Indonesia (Mulyati, 2003), the average of the participants already meets the standard, which is 175-245 wpm.

Based on the data above, the study revealed that the intelligence quotient (IQ) level has no significant influence towards students’ speed reading. The result is obtained from the correlational test result, sig. 0.764 > alpha 0.5. In other words, higher intelligence quotient (IQ) does not guarantee higher speed reading score or better comprehension score and vice versa. This is in line with Cho’s (2010) that stated higher Intelligence quotient (IQ) does not always help individuals to perform better. In addition, some

studies have suggested to diagnose inability to study from the strength and weaknesses of the students including the individual differences, academic performances, and cognitive ability (Lambert & Spinath, 2018).

This study contradicts Thalib's (2013) that stated intelligence highly influences the learning achievement in which higher intelligence quotient (IQ) students tend to acquire higher achievement. This study shows that students with higher IQ level will not always acquire higher learning achievements. This study result has revealed that students' intelligence quotient (IQ) does not highly influence the speed reading ability.

This study also contradicts Musaljon's (2015) that revealed intelligence quotient (IQ) level is positively related to the vocabulary mastery and comprehension. Meanwhile, this study has found that IQ level does not influence the students' speed reading ability. The difference result might come from the variables in the respective studies. Unlike intelligence quotient (IQ) level that highly related to the logical thinking aspect, the more vocabularies students master, the better their comprehension is. In addition, the speed reading activity is not similar to reading as quickly as possible rather than the combination of reading speed and comprehension that shows how students comprehend the text in a relatively short time.

In the speed reading, speed is not the only aspect to maintain but also the comprehension as the most important aspect of the reading activity. Two main things that must be considered in speed reading are the level of speed and a high percentage of reading comprehension. Intelligence quotient IQ may be included into one of those aspects to help students to critically think, find particular information, understand the structure, content, and the language in the text (Zulaikhah et al., 2020). Reading ability should be trained from the basic such as alphabet, syllable, word, and sentence construction. Through this training, reading will eventually a habit. When the reading habit is formed within the students, the comprehension skill will be improved and

developed quickly. In addition, teachers have to pay attention to students' interests and individual differences as the consideration in choosing appropriate teaching methods (Kurnia, 2016).

Speed reading is one of the activity that involves intelligence quotient (IQ) to comprehend the text. However, other factors are also necessary to get better results. The factors to be considered are interest, motivation, vocalization, lips movement, head movement, regression, sub-vocalization, eyes movement, vocabulary mastery, and concentration (Mulyati, 2003; Noor, 2010; Praptanti, 2002). From the observation, some students did regression or repeat the reading process, moved their heads following the lines they are reading, stopped to comprehend the text that distracted the reading process, and resulted in lower score.

Intelligence quotient (IQ) is important part of the students' learning achievement, but it is not the only aspect that contribute to their achievement. When it comes to the cognitive aspect, It, perhaps, is the crucial part, but when it comes to affective and psychomotor aspects, other supportive variables are important as well.

CONCLUSION

Intelligence quotient (IQ) level may influence towards students' speed reading in the comprehension aspect and creative and critical thinking. This study showed that IQ level has no influence towards students' speed reading ability. It does not mean that IQ does not affect the skill reading at all, but there are some factors beside IQ that contribute to this issue. Some of the factors are motivation and the reading technique. Therefore, intelligence contributes to the students' achievement. However, the intelligence itself relies on the other factors such as hard work, motivation, and habit.

This study recommends 1) beside intelligence or cognitive skill, other skills that contribute to students' achievement should be improved as well, 2) to improve the speed reading ability, both teachers and students have

to establish excellent reading habit and consider appropriate reading techniques.

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