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The Correlation between Students' Critical Thinking and Reading Comprehension at MAN 2 Gresik

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Abstract

The English language encompasses four essential skills that learners need to master. Among these, reading is crucial, as it involves the ability to comprehend printed words and symbols. Students with strong reading skills are more likely to succeed academically. This study adopted a quantitative approach, emphasizing the outcomes (test results) over the instructional process. The aim was to explore the relationship between students' critical thinking abilities and their reading comprehension. The analysis employs Pearson Correlation because the data types are ordinal and interval. The study sample consisted of 58 students, with a significance level of 5% (0.05). The r-table value for this sample size is 0.4, which is higher than the r-table. This comparison shows that rxy is higher than the r-table, 0.5 > 0.258. Consequently, the alternative hypothesis (Ha) is accepted, and the null hypothesis (H0) is rejected, indicating a positive correlation. From these results, it shows that there is a significant correlation between critical thinking skills and reading comprehension among the students of MAN 2 Gresik. Thus, it can be concluded that the higher the students' critical thinking skills, the better their reading comprehension abilities.

Keywords: correlation; critical thinking; reading comprehension.

1.Introduction

For many years, students from around the world have been learning English, which is considered an international language. Learning English has become essential for those who wish to engage in global interaction. A foreign language is one not widely used in students' immediate social context but might be relevant for future travel or cross-cultural communication, or as a curricular requirement or elective in school, even if it has no immediate practical application (Troike, 2006). The critically thinking was the rationally of intellectual skill in analyzing and assessing information. (Anderson, 1994), critical thinking indicated a skill to divide the materials became each section and also to comprehend

the composition of text. Critical thinking involves deliberate thinking with a clear purpose and specific goal. When students think critically, they seek reasons or explanations for events, consider various sides of an issue, attempt to solve problems, make decisions, or make sense of situations (Pirozzi, 2003). Critical thinking includes abilities such as focusing on a question, analyzing arguments, clarifying questions, judging source credibility, deducing and inferring conclusions, and identifying assumptions (Ennis, 1987).

Fahim and Komijani (2011) state that students' critical thinking ability correlates positively and significantly with their L2 proficiency. This suggests that utilizing critical thinking can help EFL students learn L2 more effectively. Critical thinking is essential in English teaching, as students need to solve word problems, evaluate difficulties in learning, and interpret problems accurately. Identifying and taking ownership of a problem involves gathering as much information as possible; problems do not resolve themselves without active engagement from students. Murawski (2014) explained that by using this skill, students tend to expand their perspectives from which they view the world and increase their ability to navigate important learning and life decisions. She also added that these skills will produce students as both inventors and critics of the new information

According to Snow (2002) states that reading comprehension is the process of simultaneously extracting and constructing meaning through interaction and the involvement with written language. It means that reading comprehension is process of understanding and constructing meaning from a piece of text done by the students. Jarolimek (1985) states that reading comprehension allows the reader to extract essential facts and visualize details. Thus, understanding is the most crucial aspect of reading. When reading, students must think critically. Norris and Phillips (2002) emphasize that reading is more than just articulating text; it involves thinking. Experts explain that critical thinking enables readers to navigate ambiguous texts by generating alternative interpretations, drawing from experience and world knowledge, suspending judgment until further information is available, and accepting alternative explanations. Thus, critical thinking is essential for comprehension.

Paul (2005) posits that critical thinking plays a major role in reading comprehension. He notes that reflecting on specific concepts can enhance understanding, allowing learners to grasp texts better and faster. Critical thinking involves purposeful thought, where students seek reasons or explanations, consider multiple perspectives, and make decisions (Pirozzi, 2003). Several studies have explored the correlation between critical thinking and reading comprehension. Ranti Wulandari (2019) investigated this relationship among second-year students at Islamic State Senior High School 4 Kampar in Riau, Indonesia. The study, involving 54 students, aimed to determine if a significant relationship existed between critical thinking and reading comprehension, particularly with analytical exposition texts. A correlational design utilized questionnaires and multiple-choice tests, analyzed via SPSS 16.0, revealing a significant relationship between critical thinking and reading comprehension.

Jumayeva (2016) examined the relationship between critical thinking skills and reading comprehension of descriptive texts among eleventh-grade students at SMA Kharisma Bangsa. This study, involving 35 students selected through purposive sampling, aimed to identify a significant relationship between critical thinking ability and reading comprehension. It employed a correlational design with two instruments: the Cornell Critical Thinking Test for critical thinking skills and comprehension exercises. Data were analyzed using Pearson Product Moment correlation and t-tests, revealing a significant relationship between critical thinking and reading comprehension, suggesting that higher critical thinking skills correspond to better comprehension skills.

Putra (2017) studied the correlation between critical thinking and reading comprehension achievement among students in the English Education Study Program at UIN Raden Fatah Palembang. This study, involving 108 out of 636 active EFL students, aimed to explore the correlation between critical thinking and reading comprehension achievement. Using a correlational research method, data were obtained through critical thinking and reading comprehension tests, analyzed with the Pearson Product Moment Correlation Coefficient. The result found no significant correlation between critical thinking and reading comprehension, as the p-value was greater than the significance threshold.

In comparison with the previous studies, this study shares similarities regarding the independent variable (critical thinking) and dependent variable (reading comprehension). The first study found a significant relationship with analytical exposition texts, while the second study revealed a significant correlation with descriptive texts. However, the third study indicated no significant correlation. The study focused on different types of reading comprehension, specifically TOEFL preparation, distinguishing it from previous investigations. Therefore, based on these considerations, the researchers conducted a study entitled the correlation between students' critical thinking and reading comprehension at MAN 2 Gresik.

2.Method

This study employed a correlational research design using quantitative methods to examine the relationship between critical thinking and reading comprehension. The Pearson Correlation method was chosen due to the ordinal and interval nature of the data. The study aimed to determine the correlation between critical thinking (independent variable) and reading comprehension (dependent variable).

The subjects included students from the English club at MAN 2 Gresik, which is a key extracurricular activity focused on preparing for English Olympiads. The population consisted of 135 students from grades 10 (A, B, C, D) and 11 (A, B, C) at MAN 2 Gresik. A sample was drawn from grades 10 and 11, representing 10% of the population, with a

10% margin of error, resulting in a confidence level of 90%. The sample size was determined using Slovin's formula, which is commonly used in survey research to obtain a representative sample from a large population. Proportional Random Sampling was employed to ensure that subjects from each grade were represented while giving all students an equal chance of selection.

The Cornell Critical Thinking Test (CCTT) was used to assess students' critical thinking skills. Developed by Ennis, et al (2005), the CCTT is a standardized test designed for students in grades 9-12 and has been widely used globally for over 20 years. The test consists of "Yes, No, Maybe" questions. For reading comprehension, the researchers utilized a test from Cliff's TOEFL Preparation, which includes five passages and 50 multiple-choice questions, allowing students 30 minutes to complete as many as possible. This reading test has been validated and shown to be reliable.

After collecting the data on critical thinking and reading comprehension, the scores were analyzed to assess the correlation between the two variables. This analysis would help validate the study's hypotheses. The study required checking for linearity and normality distribution as prerequisites for using parametric statistics in correlation studies.

3. Findings and Discussion

The findings confirmed the theory that students' critical thinking significantly influences their reading comprehension.

Table 1. Descriptive Statistic of Variables Measured

	N	Minimum	Maximum	Mean	Std. Deviation
CTT	58	17.00	79.00	49.0690	15.79569
RCT	58	38.00	76.00	55.1724	11.50460
Valid N (listwise)	58				

Critical thinking minimum score was 17 and the maximum was 79. Critical thinking's mean score was 49,06 and the standard deviation was 15,79. The last, reading comprehension minimum score was 38 and the maximum score was 76. The mean score of reading comprehension test was 55.17 and the standard deviation was 11,504.

Table 2. Score Distribution of Critical Thinking

Level Of Critical Thinking	Raw Score	Number of Student	Percent
High	51-71	4	6
Medium	25-50	43	75
Low	0-24	11	19
Total		58	100

Based on descriptive data table above, there were 6% students who had high critical thinking, 75% had medium critical thinking, and 19% had low critical thinking.

Table 3. Score Distribution of Reading Comprehension

Categories of Reading Comprehension	Score Interval	Number of Students	Percent
Excellent	80-100	0	0
Good	70-79	4	7
Average	60-69	27	47
Poor	50-59	6	10
Very Poor	0-49	21	36
Total		58	100

From the data above, it can be seen that there were students who 0% had an Excellent reading comprehension, 7% had good reading comprehension, 47% had average reading comprehension, 10% had poor reading comprehension, and 36% had very poor reading comprehension.

Normality Test

Table 3. One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		58
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	10.54412404
Most Extreme Differences	Absolute	.100
	Positive	.068
	Negative	-.100
Test Statistic		.100
Asymp. Sig. (2-tailed)		.200[c,d]

1) Test distribution is Normal.
2) Calculated from data.
3) Lilliefors Significance Correction.
4) This is a lower bound of the true significance.

Based on the results, it was found that the significance value was 0.200. Since the significance values are higher than 0.05, it can be concluded that the data are normally distributed. Therefore, the data could be used for further analysis.

Linearity Test

Table 4. ANOVA

			Sum of Squares	df	Mean Square	F	Sig.
RCT * CTT	Between Groups	(Combined)	3436.752	18	190.931	1.813	.060
		Linearity	1207.098	1	1207.098	11.461	.002
		Deviation from Linearity	2229.654	17	131.156	1.245	.278
	Within Groups		4107.524	39	105.321		
	Total		7544.276	57			

Based on the ANOVA output, value sig. Deviation from linearity of .278 > 0,05, it can be concluded that there is a linear relationship between the variables of Reading Comprehension with Critical Thinking.

The Result of Hypothesis Testing

Table 5. Correlations

		CTT	RCT
CTT	Pearson Correlation	1	.400**
	Sig. (2-tailed)		.002
	N	58	58
RCT	Pearson Correlation	.400**	1
	Sig. (2-tailed)	.002	
	N	58	58

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

In relation to the first problem in this study which aim was to seek the significant correlation between students' critical thinking and their reading comprehension, the researchers used Pearson Product Moment Correlation Coefficient to

answer the question. Moreover, based on the correlational analysis which can be seen in the Table 5. It was showed that the correlational coefficient of the test was 0.400 in which based on Fraenkel, Wallen, and Hyun (2012, p. 340) states that correlation coefficients show medium relationship between variables. Moreover, from the statistical analysis, it was also shown that the p-value was 0.02 which was less than 0.05 (0.020 > 0.05). Therefore, these scores explicitly indicated that it was insufficient to reject the null hypothesis that is in the other words, there was a significant correlation between students' critical thinking and their reading comprehension.

The positive direction means the higher critical thinking skill level the students have, the higher their score of reading comprehension. Therefore, since the data provided that there was a significant correlation between the variables, the further analysis was conducted in the term of finding the significant influence between the variables.

The researchers identified two variables in this study: variable X (critical thinking) and variable Y (reading comprehension). To assess these variables, a critical thinking test consisting of 71 multiple-choice questions was administered, along with a reading comprehension test featuring 50 multiple-choice questions. Normality testing was conducted using the One-Sample Kolmogorov-Smirnov method, analyzed through SPSS 25.0. A significance score greater than 0.05 indicates normal data distribution, while a score below 0.05 indicates a non-normal distribution. In this study, a significance value of 0.2 indicated that the data followed a normal distribution. For the critical thinking assessment, the researchers used the Cornell Critical Thinking Test, which resulted in scores ranging from a minimum of 17 to a maximum of 79, with a mean score of 49. For the reading comprehension test, scores ranged from 38 to 76, with a mean of 55.17, indicating average reading comprehension among the students.

To analyze the correlation between critical thinking and reading comprehension, the Pearson Product Moment Formula was employed, as the variables included ordinal and interval scales. Data analysis was performed using SPSS 25.0, with a sample size of 58 students and a significance level of 5% (0.05). The critical value (r-table) for 58 students was 0.258, and the calculated r value was 0.4, indicating a medium positive correlation. Thus, the alternative hypothesis (Ha) was accepted, and the null hypothesis (H0) was rejected, confirming that critical thinking positively correlates with students' reading comprehension. The results indicated that students with a well-developed content schema tended to demonstrate strong reading comprehension abilities.

Wulandari's (2019) research, titled "The Relationship between Critical Thinking and Reading Comprehension," involved second-year students at Islamic State Senior High School 4 Kampar, Indonesia. This study, which included 54 students, aimed to determine if a significant relationship existed between critical thinking and reading comprehension, specifically focusing on analytical exposition texts. Data were collected using questionnaires and tests, and analyzed with SPSS 16.0, revealing a significant relationship between the two variables. Jumayeva's (2016) study, "The Relationship between Students' Critical Thinking Skill and Their Reading Comprehension of Descriptive Text," involved 35 eleventh-grade students at SMA Kharisma Bangsa. The study sought to identify a significant relationship between critical thinking skills and reading comprehension. Data were gathered using the Cornell Critical Thinking Test and reading comprehension assessments, analyzed using Pearson Product Moment correlation and t-tests. Findings indicated a significant relationship, confirming that higher critical thinking skills correlate with better reading comprehension.

The similarities among these studies revolve around the investigation of students' critical thinking and reading comprehension abilities. However, differences include the focus on analytical exposition and descriptive texts in previous study, while this study concentrated on TOEFL preparation reading comprehension. Despite these differences, all studies underscore the importance of assessing students' skills in reading and critical thinking. In summary, the study demonstrated a significant correlation between students' critical thinking and reading comprehension skills, while acknowledging that other unexplained factors may also influence comprehension. These findings have important implications for educators and researchers. Ultimately, this study successfully examined the correlation between critical thinking and reading comprehension among students at MAN 2 Gresik.

4. Conclusion

Based on the findings and discussions, it was concluded that the results support the theory that students' critical thinking significantly influences their reading comprehension. The correlation coefficient was .400, with a p-value of .20, which is higher than .05 (.20 > .05). This indicates a significant correlation between students' critical thinking and reading comprehension at MAN 2 Gresik. This finding also suggests that students with high levels of critical thinking tend to have strong reading comprehension, while those with poor critical thinking skills generally exhibit weaker reading comprehension. Therefore, it can be concluded that the more critically students think, the more effectively they comprehend reading material. This ability enhances their overall reading comprehension skills

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