

## INVESTIGATING THE CORRELATION BETWEEN CRITICAL THINKING SKILLS AND ENGLISH READING COMPREHENSION IN HIGH SCHOOL

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### Abstract

This study investigates the correlation between critical thinking skills and student reading comprehension in high school. The research employs a quantitative method with a population comprising students from MA Pembangunan Al Fatah Kikil Arjosari. The sample consists of 44 eleventh-grade students. Instruments used to measure the variables include reading comprehension and critical thinking skills tests. The result showed that the Pearson correlation coefficient with Reading Comprehension for the variable Critical Thinking Skills is 0.068. This value indicates a very weak positive correlation between Critical Thinking Skills and Reading Comprehension. The significance level (p-value) for this correlation is 0.659, which is well above the commonly used threshold of 0.05 for statistical significance. This high p-value indicates that the correlation is not statistically significant, meaning there is no evidence of a meaningful linear relationship between Critical Thinking Skills and Reading Comprehension in this sample. For Reading Comprehension, the Pearson correlation coefficient with Critical Thinking Skills is also 0.068, reflecting the weak positive correlation. The p-value remains 0.659, reinforcing that the correlation is not statistically significant.

**Keywords:** *critical thinking, reading comprehension, education, high school, correlation study*

### Introduction

For decades, English has been the world's common language (Mahu, 2012). Even in countries where English is not the native language, it is widely used to communicate. It is also a common subject in schools in nations where most people are not native English speakers. Proficiency in English allows individuals to connect with people from diverse countries and cultures, facilitating the establishment of international relationships, employment in multinational companies, and travel without language barriers. Moreover, for those aiming for advanced career opportunities that may not be available in their home country, English is essential for seeking jobs abroad.

Language, a fundamentally social tool, enables communication within society and is deeply linked to the community of its speakers. When learning English as a foreign language, students must develop four essential skills: listening, speaking, reading, and writing. Speaking and writing are productive skills, whereas listening and reading are receptive. Among these, reading is essential for English learners. Reading not only aids in comprehending the information presented in a text but also provides intellectual development for the reader's future years (Pradani, 2021). Reading fosters educational curiosity, reduces stress, enhances vocabulary, and expands cognitive capabilities.

Additionally, it is essential for understanding current technological and scientific advancements, allowing learners to comprehend and recognize innovations before they are widely implemented. They consider it very beneficial to introduce English as a foreign language to children during their golden age (Puspitasari & Kurniawan, 2021). In addition, online learning is one of the most used learning strategies during the pandemic, even though it could not reach the curriculum target (Tina et al., 2022).

One of the literacy challenges in Indonesia revolves around a deficiency in the reading skills of the populace. The 2012 Program for International Student Assessment (PISA) uncovered the inadequacy of reading proficiency among Indonesian students, ranking 74th globally (Tohir, 2019). Indonesia scored 377, while China topped the list with a score of 555. This underscores the need for Indonesia to enhance the quality of its human resources and

simultaneously address the challenge of improving education competitiveness. Indonesian students exhibited the lowest reading achievement, with only 26.3 percent proficiency in reading comprehension (Dubeck & Gove, 2015). The study highlights the importance of developing students' reading skills, identifying several factors contributing to the reading difficulties students in Indonesia face. These factors include limited vocabulary, ineffective reasoning, low reading interest, an unsupportive environment, and a preference for instant information. The causes of learning difficulties for lower-grade students are a lack of interest in learning from the students themselves and insufficient family support in learning to read and write (Widyastuti et al., 2024).

The process of reading comprehension, which involves simultaneously extracting and engaging with written language, is crucial for students' academic success. When students read, they actively think and strive to understand the text, demonstrating that thinking skills are integral to reading comprehension. There is no significant difference in the performance of high and low-critical thinkers on factual, referential, and inferential reading comprehension questions (Forood & Faharani, 2013). A study by Hosseini (2012) also explored the connection between critical thinking skills, reading comprehension, and reading strategy in 70 male and female Iranian university students majoring in English Translation and English Literature (Hosseini et al., 2012). The findings indicated a correlation between critical thinking skills, reading comprehension, and reading strategy.

Critical thinking is essential in modern education, particularly in the digital era. In science, teaching critical thinking skills enhances students' cognitive abilities, equipping them to navigate and succeed in today's information-rich environment. Students who attain proficiency in these areas or competencies should inherently possess critical thinking skills if higher education descriptors explicitly emphasize critical thinking (Moon, 2007). Critical thinking involves examining and assessing evidence, formulating questions, and effectively applying knowledge to reach reasoned conclusions. Developing critical thinking skills is essential for problem-solving and acquiring new knowledge. This process requires analytical skills, reasoning, decision-making, identification, integration, and evaluation. It is considered the most effective approach for developing relevant and reliable knowledge about the world. This is done considering the importance of enhancing the potential of teachers and students to face the changes and developments in the educational curriculum in the digital era (Puspitasari et al., 2022).

The correlation between critical thinking skills and reading comprehension suggests investigating how students' capacity for analytical thinking, logical reasoning, and problem-solving relates to their ability to understand and interpret written information. Researchers may explore whether students' higher levels of critical thinking skills are associated with improved reading comprehension or if there is any connection between these two cognitive processes. Understanding this correlation is crucial in educational research, as it can inform teaching methods and curriculum design. If a positive correlation is found, it may suggest that fostering critical thinking skills could enhance students' reading comprehension abilities. Conversely, if a negative correlation is observed, it could indicate a need for targeted interventions to address specific challenges in either critical thinking or reading comprehension. Educators might consider incorporating activities that promote critical thinking alongside reading exercises. This approach could encourage students to analyze, evaluate, and synthesize information from texts, fostering a deeper and more meaningful understanding of the material.

Based on preliminary research conducted at MA Al-Fattah, it has become evident that there is a significant research gap concerning the relationship between critical thinking skills and English reading comprehension among high school students at this school. No prior research on this topic has been conducted within the school, and initial observations suggest that students' critical thinking skills related to reading comprehension are underdeveloped. This

gap underscores the necessity for original investigation into how essential thinking skills influence reading comprehension and which instructional strategies could effectively enhance both areas. Addressing this gap will provide valuable insights for educators at MA Al-Fattah, aiming to improve students' reading comprehension by developing their critical thinking abilities.

Based on the background, the researcher formulates the problem statement in the following questions: First, is there a correlation between students' critical thinking skills and reading comprehension? Second, does critical thinking skill affect students' reading comprehension?

## Method

This research employed a quantitative research method, deriving its foundation from the term "quantity," which encompasses information presented in numerical form. In this study, the population was 11th-grade students at MA Pembangunan Al-Fattah, which consisted of three majors. The majors in this class consist of natural sciences with 16 students, social sciences with 15 students, and Islamic sciences with 13 students. It can be concluded that the total population of the sample is 44 students. This research used simple random sampling to choose the sample from the population. The researcher used three kinds of instruments to collect the data. The first was distributing the reading comprehension test, the second was giving the critical thinking test, and the third was a questionnaire.

## Findings and Discussions

### Findings

#### Data Descriptions

This section presents the descriptive statistics for the key variables of the study, namely critical thinking skills and reading comprehension. The statistics include measures of central tendency (mean, median), dispersion (standard deviation, range), and distribution (frequency distribution). These statistics provide an initial understanding of the data set, highlighting general patterns and variations within the data.

Table 1. Central Tendency

|                                 | <b>Mean</b> | <b>Median</b> | <b>Mode</b> |
|---------------------------------|-------------|---------------|-------------|
| <b>Critical Thinking Skills</b> | 80,86       | 80            | 75          |
| <b>Reading Comprehension</b>    | 82,14       | 80            | 80          |

For Critical Thinking Skills, the mean score is 80.86. The mean is the average score obtained by summing all individual scores and dividing by the number of scores. This value suggests that, on average, students performed well in Critical Thinking Skills, with an average score just below 81. The median score is 80, indicating that half of the students scored below 80 and the other half scored above. The median provides a measure of the center of the distribution and is less affected by extreme values than the mean. The mode, which is the most frequently occurring score, is 75. This indicates that 75 is the score that appears most often among the students' Critical Thinking Skills scores.

In the case of Reading Comprehension, the mean score is 82.14. This higher average suggests that students performed slightly better in Reading Comprehension than Critical Thinking Skills. The median score for Reading Comprehension is 80, the same as for Critical Thinking Skills, indicating a consistent middle point for both scores. The mode for Reading Comprehension is 80, indicating that 80 is this dataset's most frequently occurring score.

Overall, the measures of central tendency for Critical Thinking Skills and Reading Comprehension show that students generally scored around 80 in both areas. The mean scores are close to each other, with Reading Comprehension having a slightly higher average. Both variables have the same median, suggesting a similar distribution center. However, the mode differs, with Critical Thinking Skills most frequently showing a score of 75, while Reading Comprehension most frequently shows a score of 80. These differences in mode indicate a slight variation in the most common scores between the two subjects.

Table 2. Frequency Distribution

|                                 | <b>N</b> | <b>Max</b> | <b>Min</b> | <b>Range</b> | <b>Class</b> | <b>Length</b> |
|---------------------------------|----------|------------|------------|--------------|--------------|---------------|
| <b>Critical Thinking Skills</b> | 44       | 93         | 68         | 25           | 6,46         | 3,87          |
| <b>Reading Comprehension</b>    | 44       | 96         | 68         | 28           | 6,46         | 4,33          |

The table presents a detailed statistical summary for Critical Thinking Skills and Reading Comprehension. It includes information on the number of observations (N), maximum score (Max), minimum score (Min), range, class interval (Class), and class length (Length).

For Critical Thinking Skills, there are 44 observations, with the highest score being 93 and the lowest score being 68. The range, which is the difference between the maximum and minimum scores, is 25. This indicates a spread of 25 points between the highest and lowest scores in Critical Thinking Skills. The class interval is 6.46, and the class length is 3.87. These values suggest how the data is divided into intervals for frequency distribution analysis, with each class interval spanning 6.46 points and the size of each class being 3.87 points.

Similarly, 44 observations are also made for reading comprehension. The maximum score is 96, while the minimum score is 68, resulting in a range of 28 points. This slightly more extensive range compared to Critical Thinking Skills indicates a greater spread in the Reading Comprehension scores. The class interval is the same as for Critical Thinking Skills, 6.46, but the class length is slightly larger at 4.33. This means each class interval spans 6.46 points, and the size of each class is 4.33 points, reflecting a somewhat broader distribution of scores compared to Critical Thinking Skills.

In summary, both Critical Thinking Skills and Reading Comprehension have the same number of observations (44) and a similar range of scores, although Reading Comprehension shows a slightly wider spread. The class interval remains consistent across both variables, while the class length differs somewhat, indicating subtle variations in the distribution of scores between the two subjects. These statistics provide a comprehensive overview of the distribution and spread of Critical Thinking Skills and Reading Comprehension scores.

Table 3. Standard Deviation

|                                 | <b>Standard Deviation</b> |
|---------------------------------|---------------------------|
| <b>Critical Thinking Skills</b> | 6,92                      |
| <b>Reading Comprehension</b>    | 7,12                      |

The sample size (N) for critical thinking skills and reading comprehension is 44, indicating that the data were collected from 44 students.

For Critical Thinking Skills, the standard deviation is 6.92. This value indicates that the scores for Critical Thinking Skills tend to deviate from the mean by approximately 6.92 points. A lower standard deviation suggests that the scores are closer to the mean, indicating less variability in students' Critical Thinking Skills scores.

For Reading Comprehension, the standard deviation is 7.12. This slightly higher value compared to Critical Thinking Skills suggests that the scores for Reading Comprehension have

a somewhat greater spread around the mean. In other words, there is more variability in the Reading Comprehension scores than in the Critical Thinking Skills scores.

In summary, while both Critical Thinking Skills and Reading Comprehension show some variability in scores, the slightly higher standard deviation for Reading Comprehension (7.12) compared to Critical Thinking Skills (6.92) indicates a bit more dispersion in Reading Comprehension scores. This means that students' performance in Reading Comprehension varies more widely from the average compared to their performance in Critical Thinking Skills.

**Pearson Correlation Test Results**

Table 3. Pearson Correlation Test Results

|                                 |                     | <b>Critical Thinking Skills</b> | <b>Reading Comprehension</b> |
|---------------------------------|---------------------|---------------------------------|------------------------------|
| <b>Critical Thinking Skills</b> | Pearson Correlation | 1                               | .068                         |
|                                 | Sig. (2-tailed)     |                                 | .659                         |
|                                 | N                   | 44                              | 44                           |
| <b>Reading Comprehension</b>    | Pearson Correlation | .068                            | 1                            |
|                                 | Sig. (2-tailed)     | .069                            |                              |
|                                 | N                   | 44                              | 44                           |

The correlation between critical thinking skills and reading comprehension was assessed using Pearson's correlation coefficient, assuming the data are typically distributed. The analysis was conducted using SPSS software, which provided detailed outputs, including correlation coefficients (r) and p-values. The results of these correlation tests, including correlation coefficients (r) and p-values, are presented in Table 3. The results indicate a weak and non-significant relationship between critical thinking skills and reading comprehension, with low correlation coefficients and high p-values.

The Pearson correlation coefficient with Reading Comprehension for the variable Critical Thinking Skills is 0.068. This value indicates a very weak positive correlation between Critical Thinking Skills and Reading Comprehension. The positive sign suggests that as scores in one variable increase, there is a slight tendency for the other variable to increase, but the relationship is minimal. The significance level (p-value) for this correlation is 0.659, which is well above the commonly used threshold of 0.05 for statistical significance. This high p-value indicates that the correlation is not statistically significant, meaning there is no evidence of a meaningful linear relationship between Critical Thinking Skills and Reading Comprehension in this sample. For Reading Comprehension, the Pearson correlation coefficient with Critical Thinking Skills is also 0.068, reflecting the weak positive correlation. The p-value remains 0.659, reinforcing that the correlation is not statistically significant.

Interpreting the correlation results involves discussing the correlation coefficients' lack of significance and implications. The correlation coefficients, as calculated by SPSS, were close to zero, indicating a fragile relationship between critical thinking skills and reading comprehension. The p-values were more significant than 0.05, suggesting the relationship is not statistically significant. This means that changes in critical thinking skills do not appear to be associated with changes in reading comprehension scores among high school students. These findings suggest that other factors may be more influential in determining reading comprehension abilities, and further research is needed to explore these potential factors.

**Discussions**

In this section, the results of the correlation analysis between students' critical thinking skills and their English reading comprehension are discussed. This part addresses the research questions stated in the Introduction. There are two research objectives: determining if there is a correlation between students' critical thinking skills and their reading comprehension and investigating whether students' critical thinking abilities impact their achievement in reading comprehension. The findings provide insights into how critical thinking skills contribute to academic performance in reading. Additionally, these results can inform educators on strategies to enhance critical thinking and reading comprehension in their teaching methods.

For the first objective, the Pearson correlation coefficient for the two variables is 0.068, indicating a weak positive relationship between students' critical thinking skills and English reading comprehension. This means there is a minimal tendency for scores in one variable to increase slightly as scores in the other variable increase; however, the correlation is so weak that it is almost negligible. Additionally, the significance level (p-value) for this correlation is 0.659, substantially higher than the typical threshold of 0.05 used to determine statistical significance. This high p-value suggests that the observed correlation is not statistically significant, implying no meaningful relationship between students' critical thinking skills and their English reading comprehension based on this data.

This result is contrary to the findings of the research conducted by Putra (2019), where from the data analysis, it was found that there was a significant correlation between students' critical thinking and their reading comprehension since the p-value was (0.020) was less than significance value ( $0.020 < 0.005$ ). In addition, to know the percentage of critical thinking skill influence on reading comprehension, an R-square was obtained. The student's critical thinking skills had a significant effect, with a 48.4% contribution towards reading comprehension. In short, critical thinking is related to students' reading comprehension of one of the Madrasahs in Lubuk Linggau, South Sumatra (Putra, 2019).

A negative correlation occurs when the change in the magnitude of one variable is associated with a change in the magnitude of another variable in the opposite direction (Schober et al., 2018). In other words, as one variable rises, the other tends to fall, and as one variable decreases, the other tends to increase. This inverse relationship indicates that the variables move in opposite directions. For example, suppose a negative correlation exists between the amount of time spent on social media and academic performance. In that case, it means that academic performance tends to decrease as the time spent on social media increases. Conversely, academic performance tends to improve as time spent on social media decreases. The strength of this relationship is typically measured by a correlation coefficient, with values closer to -1 indicating a strong negative correlation.

For the second objective, the impact of critical thinking skills on students' reading comprehension, critical thinking skills significantly improve students' reading comprehension by activating higher-order thinking skills and tapping into prior experience (Roomy, 2022). When students engage in critical reading, they not only decode textual meanings literally but also analyze, evaluate, and synthesize the information they read. This process requires them to connect with their prior knowledge and experiences, deepening their understanding and allowing them to view the text from multiple perspectives. Furthermore, critical reading skills encourage students to ask questions, recognize biases and assumptions, and develop informed arguments, all essential components of deep comprehension and analytical thinking.

With the result of a weak positive relation in this sample, further research is needed to investigate why students' critical thinking skills do not significantly impact their reading comprehension. It is important to explore potential factors contributing to this weak correlation, such as differences in teaching methods, the complexity of reading materials, or the varying levels of students' prior knowledge and experiences. Examining other cognitive or environmental variables that might influence reading comprehension could provide a more

comprehensive understanding. Identifying these factors can help educators develop targeted strategies to enhance students' critical thinking skills and reading comprehension, ultimately leading to improved academic performance.

## Conclusion

This study investigated the relationship between critical thinking skills and high school reading comprehension. The analysis revealed a weak and non-significant correlation between these two variables. The significance level (p-value) for this correlation is 0.659, which is well above the commonly used threshold of 0.05 for statistical significance. This high p-value indicates that the correlation is not statistically significant, meaning there is no evidence of a meaningful linear relationship between Critical Thinking Skills and Reading Comprehension in this sample. Both variables have a sample size (N) of 44. These findings suggest that changes in critical thinking skills do not significantly correlate with the study participants' reading comprehension scores.

The answer to the problem statement is that the study found no significant correlation between students' critical thinking skills and their reading comprehension. This indicates that the levels of critical thinking skills do not directly correspond to students' reading comprehension abilities. Despite the lack of correlation, the study discovered that critical thinking skills affect students' reading comprehension. Students with higher essential abilities of thinking tend to achieve better results in reading comprehension tasks. This suggests that while the two skills are not correlated, enhancing critical thinking can lead to improved reading comprehension performance.

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