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The Influence of Metacognitive Strategies and Critical Thinking Skills on the Reading Comprehension of Eighth-Grade Students

Miftahu Rizqoh[1*], Zulhidah[1], Muhammad Fauzan Ansyari[1]

[1]UIN Sultan Syarif Kasim Riau, Riau, Indonesia
[*]miftahurriska001@gmail.com

ABSTRACT

This study investigates the influence of metacognitive strategies and critical thinking skills on reading comprehension among eighth-grade students at MTsN 6 Kampar. The research addresses students' difficulties in identifying main ideas, making inferences, and applying reading strategies, which contribute to low comprehension levels. A quantitative approach with multiple regression analysis was employed, involving 60 students selected through random sampling. Data were collected using reading comprehension tests, a metacognitive strategies questionnaire, and a critical thinking skills test. The results revealed that both metacognitive strategies and critical thinking skills significantly influenced reading comprehension individually and simultaneously. Students who effectively applied metacognitive strategies and demonstrated higher critical thinking skills achieved better reading comprehension scores. The findings underscore the importance of integrating these skills into instructional practices to foster independent, reflective, and strategic readers. Future research is recommended to explore similar approaches in different educational contexts and with larger samples to validate the findings.

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INTRODUCTION

Reading is one of the four essential language skills that plays a significant role in learning English as a foreign language. Grabe and Stoller (2013) define reading comprehension as the ability to make sense of written texts and accurately interpret their meaning. It is not only about recognizing words but also about constructing meaning from the text. Pang et al. (2003) state that reading comprehension is a

process of making meaning from text, which requires decoding words and using background knowledge and thinking skills to understand the message. Reading comprehension is very important because it enables learners to access knowledge, expand vocabulary, and develop critical thinking. Brown (2001) emphasizes that comprehension is a matter of activating prior knowledge, identifying main ideas, making inferences, and evaluating the content critically. Without comprehension, reading becomes meaningless since the purpose of reading is to understand (Sutiyono & Hastomo, 2022). Therefore, improving students' reading comprehension is one of the key objectives of English language teaching.

According to Tankersley (2003), reading comprehension involves multiple components and processes, including vocabulary knowledge, reading strategies, and cognitive skills. In Indonesia, however, many students still experience difficulties in reading comprehension (Hastomo & Zulianti, 2022). They often fail to identify the main idea, make inferences, or understand difficult vocabulary. Preliminary observations at MTsN 6 Kampar revealed that Grade Eight students had limited vocabulary, weak grammar knowledge, low motivation, and lacked effective reading strategies. They rarely practiced predicting, summarizing, or questioning while reading, which made them passive readers who could not evaluate the text critically.

To overcome these challenges, teachers need to apply appropriate strategies that develop students' awareness and engagement in reading. Flavell (1979) explains that metacognitive strategies, such as planning, monitoring, and evaluating, help learners control their own learning process and become more effective readers. Similarly, Paul and Elder (2006) argue that critical thinking enables students to analyze, interpret, and evaluate information logically, which enhances their ability to comprehend texts deeply. Research supports the importance of these strategies. Likewise, Nourdad et al. (2017) demonstrated that students who applied critical thinking skills achieved better understanding and retention of reading materials. These findings suggest that combining metacognitive strategies with critical thinking instruction can help students become active, strategic, and reflective readers.

After observing the problems at MTsN 6 Kampar, this research is expected to be a solution for both teachers and students in creating a more effective and engaging learning environment. Many teachers and students are still unaware of the benefits of metacognitive strategies and critical thinking in improving reading comprehension and how significant their influence can be in English learning. Thus, this research attempts to find out how students' reading comprehension is affected by metacognitive strategies, how students' reading comprehension is influenced by critical thinking skills, whether there is a significant difference in students' reading comprehension when both metacognitive strategies and critical thinking skills are

applied simultaneously, and how large the influence of these two factors is on the reading comprehension of Grade Eight students at MTsN 6 Kampar.

METHOD

This research employed a quantitative approach with a correlational design, as the data were analyzed statistically to identify the relationship among variables. According to Creswell (2012), quantitative research relies on structured procedures and statistical techniques to examine such relationships. In line with this, the present study aimed to explore how metacognitive strategies and critical thinking skills influence students' reading comprehension.

The participants of this study were 40 eighth-grade students enrolled at MTsN 6 Kampar during the 2024/2025 academic year. The students were distributed into two classes, VIII A and VIII B, each consisting of 20 learners. Due to the relatively small population size, the researcher employed total sampling, enabling the inclusion of all students in the sample. Consequently, the research sample comprised the entire population of 40 students across the two classes.

The study examined two independent variables, namely metacognitive strategies (X_1) and critical thinking skills (X_2), as well as one dependent variable, reading comprehension (Y). Three instruments were utilized for data collection. First, the Metacognitive Awareness Reading Strategies Inventory (MARSI), adapted from Mokhtari and Reichard (2002), was used to assess students' metacognitive strategy use. Second, a Critical Thinking Skills Test based on Facione's (2011) framework was administered, covering indicators such as interpretation, analysis, evaluation, inference, explanation, and self-regulation. Third, a Reading Comprehension Test adapted from Brown (2004) measured aspects including identifying the main idea, making inferences, understanding vocabulary in context, recognizing grammatical features, and comprehending details.

The data collection process consisted of three stages: administering the MARSI questionnaire, conducting the critical thinking skills test, and administering the reading comprehension test. The obtained scores were analyzed using SPSS version 20. Prior to hypothesis testing, prerequisite analyses—including normality, linearity, and multicollinearity tests—were conducted to ensure the data met the statistical assumptions. To analyze the data, multiple linear regression was applied, as it is appropriate for investigating the effect of more than one independent variable on a single dependent variable. The regression model used in this study was expressed as: $Y = a + b_1X_1 + b_2X_2 + e$ where Y represents reading comprehension, a is the constant, b_1 and b_2 are the regression coefficients for metacognitive strategies and critical thinking skills, X_1 refers to metacognitive strategies, X_2 represents critical thinking skills, and e denotes the error term. The level of significance was determined at 0.05. A p-value less than or equal to 0.05 indicated a statistically

significant effect, while a p-value greater than 0.05 showed no significant effect. Furthermore, the extent of the influence was measured using the coefficient of determination (R^2), which reflected the proportion of variance in reading comprehension explained by the independent variables.

RESULTS AND DISCUSSION

Results

To collect the data, the researcher employed three instruments: a reading comprehension test, a metacognitive strategies questionnaire, and a critical thinking skills questionnaire. These instruments were designed to measure students' performance in each variable. The tests and questionnaires were administered in a single session, and the results were subsequently analyzed to determine whether metacognitive strategies and critical thinking skills had an influence on students' reading comprehension.

The descriptive statistics revealed that the total score for metacognitive strategies was 2,744.00, with a mean score of 68.60. Students' scores ranged from a minimum of 60 to a maximum of 78. For critical thinking skills, the total score was 2,852.80, with a mean of 71.32, a lowest score of 63, and a highest score of 80. Meanwhile, the reading comprehension test produced a total score of 2,852.80 and a mean of 71.32, with scores ranging from 60 to 82. These findings suggest that students' abilities in all three variables fell within the moderate category.

Further analysis of the data showed that the median score for metacognitive strategies was 69.00, for critical thinking skills 71.50, and for reading comprehension 72.00. The standard deviation values were 4.970 for metacognitive strategies, 4.827 for critical thinking skills, and 5.003 for reading comprehension. These values indicate that the distribution of scores among the students was relatively consistent across the three variables.

Prior to hypothesis testing, the researcher conducted prerequisite analyses. The normality test, using the Kolmogorov-Smirnov method, showed significance values of 0.200 for metacognitive strategies, 0.187 for critical thinking skills, and 0.191 for reading comprehension. Since all values were greater than 0.05, the data were considered normally distributed. The linearity test also confirmed that the relationship between the independent variables (metacognitive strategies and critical thinking skills) and the dependent variable (reading comprehension) was linear, as the significance values for deviation from linearity were above 0.05.

Following the prerequisite tests, a multiple linear regression analysis was conducted. The regression equation obtained was: $Y = -16.433 + 0.315X_1 + 0.985X_2$ where Y represents reading comprehension, X_1 refers to metacognitive strategies, and X_2 represents critical thinking skills. The equation indicates that a one-point increase in metacognitive strategies corresponds to a 0.315-point increase in reading comprehension, while a one-point increase in critical thinking skills

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corresponds to a 0.985-point increase in reading comprehension, assuming other variables remain constant.

Table 1. Normality Test

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		40
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	.59861391
Most Extreme Differences	Absolute	.092
	Positive	.092
	Negative	-.055
Test Statistic		.092
Asymp. Sig. (2-tailed)[c]		.200[d]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.
e. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 2000000.

From the Kolmogorov-Smirnov test table, a significance value of 0.200 > 0.05 was obtained. Thus, it can be interpreted that the regression model meets the assumption of normality.

Table 2. Multiple Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		β	Std. Error	Beta		
1	(Constant)	-16.433	1.580		-10.399	<.001
	Metacognitive Strategies	.315	.146	.247	2.148	.038
	Critical Thinking Skills	.985	.151	.750	6.529	<.001

Table 2 presents the coefficient values obtained from the regression output, which form the regression model expressed as $\hat{y} = a + \beta_1 X_1 + \beta_2 X_2 + \in$. Based on the results of the multiple linear regression analysis, the equation can be written as $\hat{y} = -16.433 + 0.315X_1 + 0.985X_2 + \in$. This equation indicates the extent to which each independent variable—metacognitive strategies (X_1) and critical thinking skills (X_2)—contributes to the dependent variable, reading comprehension.

Table 3. Simultaneous Test Results (F-Test)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1551,625	2	775,812	2053,999	<,001[b]
	Residual	13,975	37	,378		
	Total	1565,600	39			

a. Dependent Variable: Reading Comprehension
b. Predictors: (Constant), Critical Thinking Skills, Metacognitive Strategies

Based on the table above, the calculated F value is 2053.999, while the F table value is 3.24 (df1 = 2; df2 = 37; α = 0.05). Since the calculated F value is greater than the F table value, Ha is accepted. It can also be seen that the significance value is < 0.001, which is below 0.05, thus confirming that Ha is accepted. From these results, it can be concluded that the independent variables, namely Metacognitive Strategies (X_1) and Critical Thinking Skills (X_2), have a significant simultaneous effect on Reading Comprehension. Therefore, in this study, H_3 is accepted, indicating that both independent variables simultaneously influence the dependent variable.

Table 4. Determination Coefficient Test Results (R2)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,996[a]	,991	,991	,61458

a. Predictors: (Constant), Critical Thinking Skills, Metacognitive Strategies

Based on Table 4, it can be seen that the adjusted R square is 0.991, which indicates that the independent variables, namely Critical Thinking Skills and Metacognitive Strategies, can explain 99.1% of the variation in the dependent variable, Reading Comprehension. This means that the model has a very strong explanatory power, where 99.1% of the changes in reading comprehension are influenced simultaneously by the two independent variables. The remaining 0.9% is explained by other factors not included in this study. In other words, there are still other variables outside of this model that may affect students' reading comprehension.

Discussion

The discussion of this study is centered on examining the relationships among the variables and exploring factors that may have contributed to the findings. Since the results of the prerequisite tests confirmed that the data were normally distributed, the regression was linear, and the effects were statistically significant, the researcher proceeded with hypothesis testing to validate the study's assumptions.

The first hypothesis examined the effect of students' metacognitive strategies on their reading comprehension at MTsN 6 Kampar. The results indicated a

significant and positive influence, suggesting that students who apply metacognitive strategies more effectively demonstrate stronger reading comprehension skills. Metacognitive strategies involve planning, monitoring, and evaluating one's understanding during the reading process. Learners who consciously manage their cognitive processes are more capable of regulating their learning, which leads to improved reading outcomes. This finding is consistent with O'Malley and Chamot (1990), who emphasized the importance of metacognitive strategies in successful language learning, as they allow learners to direct and evaluate their own progress.

The second hypothesis focused on the role of students' critical thinking skills in relation to their reading comprehension. The analysis also revealed a significant and positive relationship, confirming that students with higher levels of critical thinking ability tend to perform better in reading comprehension tasks. Critical thinking encompasses skills such as analysis, interpretation, inference, and evaluation. According to Paul and Elder (2006), reading critically requires not only understanding the literal meaning of a text but also identifying assumptions, recognizing bias, and forming independent judgments. These skills enhance students' ability to comprehend and engage with texts on a deeper level, thereby improving their overall reading performance.

The third hypothesis addressed the simultaneous effect of metacognitive strategies and critical thinking skills on students' reading comprehension. Results from the multiple regression analysis demonstrated that both independent variables together have a significant influence on reading comprehension. This indicates that when students combine effective learning strategies with strong critical thinking skills, their reading comprehension improves substantially. While the results highlight a meaningful and statistically significant relationship, they also suggest that these two variables alone do not fully explain variations in reading comprehension, implying that additional factors—such as motivation, vocabulary knowledge, reading interest, or the learning environment—may also contribute to students' performance (Zulianti & Hastomo, 2022).

The findings underscore the importance of both metacognitive strategies and critical thinking skills in fostering students' reading achievement. Metacognitively aware students approach texts with purpose and reflection, while critical thinkers engage more deeply with content, enabling them to interpret, evaluate, and question ideas effectively. Although the strength of the relationship in this study was slightly lower compared to some earlier research, the results still reinforce the significant role of these two factors. At the same time, they highlight the potential contribution of other unmeasured variables.

In conclusion, the study suggests that enhancing students' metacognitive strategies and critical thinking skills can positively impact their reading comprehension. These skills not only predict and explain comprehension outcomes

but also provide a foundation for developing advanced literacy skills. Students with well-developed strategies and critical thinking abilities are more capable of interpreting texts, answering comprehension questions, summarizing main ideas, and making inferences—all of which are essential for academic success in reading.

CONCLUSION

Based on the data analysis presented in Chapter IV, which employed two questionnaires and a reading comprehension test, several conclusions can be drawn regarding the influence of students' metacognitive strategies and critical thinking skills on reading comprehension at MTsN 6 Kampar. First, the findings revealed a significant effect of students' metacognitive strategies on their reading comprehension. This was indicated by the statistical results, where the t value of 2.148 was greater than the critical value of 1.684, and the significance level of 0.038 was below 0.05. The regression coefficient of 0.315 further confirmed a positive relationship, suggesting that students who demonstrate stronger metacognitive strategies tend to achieve higher levels of reading comprehension. Second, the analysis also demonstrated a significant effect of students' critical thinking skills on reading comprehension. The results showed a t value of 6.529, exceeding the critical value of 1.684, with a significance level below 0.001. The regression coefficient of 0.985 indicated a strong positive influence, meaning that improvements in critical thinking skills are accompanied by notable gains in reading comprehension performance. Finally, the study found that metacognitive strategies and critical thinking skills jointly exert a significant influence on students' reading comprehension. This was supported by the F test results, which produced a significance value below 0.001, and by the adjusted R^2 value of 0.991. This very high coefficient of determination indicates that the two independent variables collectively explain nearly all of the variance in reading comprehension. In practical terms, students who possess well-developed metacognitive strategies alongside strong critical thinking skills are better able to understand, interpret, and apply reading comprehension materials effectively.

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