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Examining Metacognitive Awareness, Critical Thinking, And Intensive Reading Performance Among Students In Islamic Boarding High Schools

Robiatul Aminah Hasibuan[1]*, Irwandi[2]
Corresponding Author's e-mail : robiatulaminah44@gmail.com

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Abstract

This study aimed to investigate the relationship between students' metacognitive awareness, critical thinking, and intensive reading performance in Islamic boarding high schools located in Padang Lawas. Preliminary observations at MAS Al-Amin Mompang and MAS Ja'fariyah Hutaibus revealed several issues, including students possessing metacognitive awareness yet obtaining low reading scores, students achieving high reading scores despite limited critical thinking abilities, and low overall motivation during intensive reading activities. Utilizing a quantitative correlational design, the research involved 74 eleventh-grade students. Data were gathered through the Metacognitive Awareness Inventory (MAI), Critical Thinking Questionnaire (CTHQ), and a reading comprehension test, followed by analysis using descriptive statistics, prerequisite tests, Pearson product-moment correlation, and multiple regression. Results showed a significant positive correlation between metacognitive awareness and intensive reading performance ($r = .507$, $p < .001$), as well as between critical thinking and intensive reading performance ($r = .675$, $p < .001$). Multiple regression analysis further indicated a significant joint relationship, $F(2, 71) = 49.008$, $p < .001$, with $R^2 = .580$. Consequently, metacognitive awareness and critical thinking collectively accounted for approximately 58% of the variance in intensive reading performance. These findings supported explicitly integrating metacognitive strategies and critical thinking into reading instruction within Islamic boarding schools.

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[1] English Department, State Islamic University of Sjech M. Djamil Djambek Bukittinggi, Bukittinggi, Indonesia
[2] English Department, State Islamic University of Sjech M. Djamil Djambek Bukittinggi, Bukittinggi, Indonesia

Introduction

Reading is a central component of English learning, and intensive reading requires learners to engage closely with short texts in order to understand vocabulary, language features, organization, and meaning. In intensive reading, students are expected to attend to textual details and develop accurate comprehension rather than merely obtain a general impression of a text (Bela & Albert, 2021; Taembo, 2023). This makes intensive reading cognitively demanding, particularly for learners of English as a foreign language. Metacognitive awareness is important in this process because it enables learners to recognize, plan, monitor, and evaluate their own cognitive activity. The Metacognitive Awareness Inventory developed by Schraw and Dennison (1994) distinguishes knowledge about cognition from regulation of cognition. In reading, these processes can help students select appropriate strategies, recognize comprehension difficulties, and adjust their reading behavior. Previous studies have reported positive relationships between metacognitive awareness and reading comprehension (Anjomshoaa et al., 2012; Hamiddin & Saukah, 2020; Nahar & Mallik, 2022; Mustopa et al., 2024).

Critical thinking provides another cognitive dimension of effective reading. Critical readers do more than locate explicit information; they analyze claims, evaluate evidence, identify assumptions, make inferences, and connect ideas. Therefore, critical thinking is closely associated with reading ability. For example, Maisarah et al. (2023) found a positive correlation between critical thinking and reading ability, while Mu'ad et al. (2024) reported a positive relationship between critical thinking and reading comprehension among students at MAN 2 Gresik. The preliminary research reported, conducted at MAS Al-Amin Mompang and MAS Ja'fariyah Hutaibus Padang Lawas on 8 February 2025, identified three practical problems. First, some students demonstrated metacognitive behaviors such as setting goals, preparing study schedules, underlining information, or rereading difficult passages but still achieved low reading scores. Second, some students obtained relatively good reading scores but had difficulty drawing deeper meanings from a text, indicating limitations in critical thinking. Third, teachers and students reported declining motivation for intensive reading, with students becoming increasingly passive during reading activities.

Although previous studies have examined metacognitive awareness and reading or critical thinking and reading separately, the researcher identifies a gap in the simultaneous examination of all three variables in Islamic boarding high schools. Most related studies were conducted in public schools, universities, or general EFL settings, whereas the present study focuses on the specialized educational context of Islamic boarding high schools in Padang Lawas. The novelty therefore lies in examining metacognitive awareness and critical thinking together in relation to intensive reading performance in this context. Accordingly, this study addresses three questions: (1) Is there a significant correlation between students' metacognitive awareness and intensive reading performance? (2) Is there a significant correlation between students' critical thinking and intensive reading performance? and (3) Is there a significant relationship among metacognitive awareness, critical thinking, and intensive reading performance in Islamic boarding high schools in Padang Lawas. The study is intended to provide empirical evidence that can inform English reading instruction and the development of students as more reflective and analytical readers.

Methods

This study employed a quantitative approach with a correlational research design. The design was selected because the purpose was to determine the direction and strength of relationships among metacognitive awareness, critical thinking, and intensive reading performance without manipulating the

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variables. The methodological approach follows the quantitative and correlational framework with reference to Gay et al. (2012). The population consisted of students from 30 Islamic boarding high schools. Convenience sampling was used, and two schools that were accessible to the researcher were selected: MAS Al-Amin Mompang and MAS Ja'fariyah Hutaibus Padang Lawas. The participants were 74 grade XI students from the two schools.

Three instruments were used. First, metacognitive awareness was measured with a 52-item Metacognitive Awareness Inventory (MAI) adapted from Schraw and Dennison (1994). The MAI covered knowledge about cognition declarative, procedural, and conditional knowledge and regulation of cognition, including planning, information-management strategies, comprehension monitoring, debugging strategies, and evaluation. Second, critical thinking was measured with a 25-item Critical Thinking Questionnaire (CTHQ) adapted from Kobylarek et al. (2022), covering analyzing, evaluating, creating, remembering, understanding, and applying. Both questionnaires used a four-point Likert scale. Third, intensive reading performance was measured using a 24-item multiple-choice reading comprehension test based on the indicators of vocabulary, inference, understanding text structure, and comprehension monitoring described by Oakhill et al. (2015). The reading materials included hortatory exposition texts. The content validity of the instruments was assessed using Aiken's validity index. The study reports indices of 0.95 for the MAI, 0.96 for the CTHQ, and 0.95 for the reading comprehension test, indicating high expert agreement on content validity.

Data collection was conducted using paper-based instruments. The MAI and CTHQ were administered at MAS Al-Amin Mompang on 12 June 2025 and at MAS Ja'fariyah Hutaibus on 14 June 2025. The reading test was administered at MAS Al-Amin Mompang on 17 June 2025 and at MAS Ja'fariyah Hutaibus on 18 June 2025. Each session lasted approximately 40 minutes. Before hypothesis testing, the study converted ordinal questionnaire data into interval data using the Method of Successive Interval (MSI). Normality, homogeneity, and linearity were then examined. Pearson product-moment correlation was used for the first two hypotheses, while multiple regression was used to examine the joint relationship among the three variables. Statistical decisions used an alpha level of 0.05.

Results and Discussions

1. Descriptive Results

Table 1. Descriptive statistics of the three variables

Variable	N	Minimum	Maximum	Mean
Metacognitive awareness	74	105.00	173.00	134.39
Critical thinking	74	47.00	87.00	64.91
Intensive reading performance	74	12.50	70.83	42.17

The descriptive results show substantial variation among the participants. Metacognitive awareness ranged from 105.00 to 173.00, with a mean of 134.39. The largest metacognitive-awareness group was the 123–131 interval, containing 28 students. Critical-thinking scores ranged from 47.00 to 87.00, with a mean of 64.91; the largest group was in the 62–66 interval, containing 24 students. Reading performance ranged from 12.50 to 70.83, with a mean of 42.17, and the largest group was in the 44–51 interval. The distribution suggests that the participants generally demonstrated moderate levels of metacognitive awareness and critical thinking, while intensive reading performance showed wider

dispersion. This pattern is consistent with the preliminary observation that students may possess some awareness of learning strategies without necessarily translating that awareness into equally strong comprehension outcomes.

2. Prerequisite Analysis

Table 2. Selected prerequisite-test results

Test	Statistic / criterion	Result	Decision
Normality (Kolmogorov–Smirnov)	MA p=.098; CT p>.200; RC p=.124	All p > .05	Normal
Homogeneity (Levene, mean)	F=4.159; p=.186	p > .05	Homogeneous
Linearity MA–RC	Deviation p=.257	p > .05	Linear
Linearity CT–RC	Deviation p=.089	p > .05	Linear

The prerequisite analyses supported the use of parametric procedures. The normality results showed significance values above .05 for the variables in the reported sample. The Levene test based on the mean produced p = .186, which was interpreted as evidence of homogeneity. For linearity, the deviation-from-linearity values were .257 for metacognitive awareness and reading comprehension and .089 for critical thinking and reading comprehension. Both values exceeded .05, indicating no statistically significant deviation from linearity.

3. Hypothesis Testing

Table 3. Pearson correlations with intensive reading performance

Relationship	r	p	N	Interpretation
Metacognitive awareness – reading	0.507	< .001	74	Moderate positive
Critical thinking – reading	0.675	< .001	74	Strong positive

The first hypothesis was supported. The correlation between metacognitive awareness and intensive reading performance was positive and statistically significant (r = .507, p < .001). Thus, students with higher metacognitive awareness tended to have better intensive reading performance. The magnitude was interpreted as moderate. This result is consistent with research emphasizing the role of planning, monitoring, and evaluation in reading comprehension (Amanda & Dewi, 2021; Hamiddin & Saukah, 2020; Nahar & Mallik, 2022). The second hypothesis was also supported. Critical thinking had a stronger positive correlation with intensive reading performance (r = .675, p < .001). The relationship was interpreted as strong. This suggests that the abilities to analyze, evaluate, understand, create, remember, and apply information are closely associated with successful intensive reading. The finding is in line with Maisarah et al. (2023), who reported a positive correlation between critical thinking and reading ability, and with Mu'ad et al. (2024), who found a positive relationship between critical thinking and reading comprehension in a madrasah context.

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Table 4. Multiple regression of metacognitive awareness and critical thinking on reading performance

Model	R	R^2	Adjusted R^2	F	p
MA + CT → Reading	0.762	0.580	0.568	49.008	< .001

The third hypothesis was supported by the multiple-regression analysis. The model was statistically significant, $F(2, 71) = 49.008$, $p < .001$, with $R = .762$ and $R^2 = .580$. Thus, metacognitive awareness and critical thinking jointly explained approximately 58% of the variance in intensive reading performance, while the remaining 42% was associated with other factors not included in the model. The result supports the view that metacognitive regulation and critical thinking are complementary: metacognition helps learners regulate how they approach a task, whereas critical thinking helps them analyze and evaluate the information encountered in the text.

The first relationship is theoretically plausible because metacognitive awareness enables readers to plan reading, monitor comprehension, and evaluate whether selected strategies are effective. The moderate coefficient also indicates that metacognitive awareness is not sufficient by itself. Language proficiency, prior knowledge, vocabulary, motivation, and other contextual factors may also contribute to reading outcomes. This interpretation is consistent with the thesis discussion and with previous research showing that metacognitive strategies are important but operate within broader learning conditions. The stronger relationship between critical thinking and reading performance indicates that intensive reading requires more than strategic regulation. Students must also interpret information, identify relationships, evaluate claims, infer meanings, and integrate ideas. These demands correspond directly to the cognitive processes emphasized in the CTHQ and in the literature on critical reading. The finding therefore reinforces the importance of integrating analytical and evaluative questions into reading lessons rather than relying only on literal comprehension questions.

The combined model is particularly relevant to Islamic boarding high schools. The study identifies this context as relatively under-researched and emphasizes that cognitive-skill development can coexist with religious and moral education. Metacognitive activities such as goal setting, self-questioning, summarizing, and comprehension monitoring can be combined with critical-thinking activities such as argument analysis, perspective taking, inference, and evaluation. Such integration may help students engage more actively with both academic and religious texts. The findings should nevertheless be interpreted as correlational rather than causal. The design does not establish that increasing metacognitive awareness or critical thinking will necessarily cause higher reading performance. In addition, the sample was obtained through convenience sampling from two accessible schools, which limits generalization. The study also notes that gender and cognitive style were not analyzed. Future research can therefore use larger and more diverse samples and experimental or quasi-experimental designs to test the effects of explicit metacognitive and critical-thinking interventions.

Conclusion

This study concludes that metacognitive awareness and critical thinking are significantly and positively associated with intensive reading performance among Grade XI students in Islamic boarding secondary schools in Padang Lawas. Metacognitive awareness demonstrated a moderate positive correlation with intensive reading performance ($r = .507$, $p < .001$), while critical thinking exhibited a stronger positive correlation ($r = .675$, $p < .001$). Furthermore, the multiple regression analysis revealed that both variables jointly contributed to a statistically significant predictive model, $F(2, 71) = 49.008$, $p < .001$, explaining 58% of the variance in students' intensive reading performance. These findings

indicate that students with higher levels of metacognitive awareness and critical thinking tend to demonstrate better reading performance. The results also highlight the importance of integrating cognitive and metacognitive dimensions into reading instruction, particularly through activities involving planning, monitoring, self-evaluation, analytical reasoning, inference, and critical interpretation of textual information. Nevertheless, the remaining unexplained variance suggests that other cognitive, linguistic, motivational, and contextual factors may also influence students' reading achievement.

Based on these findings, several recommendations are proposed for future research, educational practitioners, and policymakers. Future studies should investigate additional factors influencing intensive reading performance, including vocabulary knowledge, reading motivation, language proficiency, and learning environments, using larger samples and longitudinal or experimental designs to examine potential causal relationships. For educational practitioners, English teachers in Islamic boarding schools are encouraged to incorporate explicit metacognitive reading strategies, reflective learning activities, analytical questioning, and critical discussion into classroom instruction to strengthen students' reading comprehension and independent learning abilities. Teachers should also provide structured opportunities for students to evaluate their understanding, draw logical inferences, and critically assess textual information. For policymakers and educational institutions, professional development programmes should be strengthened to enhance teachers' competencies in metacognitive and critical thinking-based instruction. Additionally, curriculum development should emphasise the integration of higher-order thinking skills and reflective reading practices. These recommendations are expected to support more effective, inclusive, and sustainable intensive reading instruction within Islamic boarding school environments.

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