

The Influence of Literacy-Based Learning Strategies on Students' Critical Thinking Skills at SMA Muhammadiyah 01 Medan

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ARTICLE INFO	ABSTRACT
Article history: Received: January 30, 2025 Revised: March 18, 2025 Accepted: April 23, 2025 Available Online: May 30, 2025	This study aims to examine the influence of literacy-based learning strategies on students' critical thinking skills at SMA Muhammadiyah 01 Medan. A quantitative approach with a quasi-experimental design was employed. The population consisted of all eleventh-grade students, and the sample was selected purposively. Data were collected through critical thinking tests administered before and after the implementation of the treatment. The data analysis revealed a significant improvement in students' critical thinking skills following the application of the literacy-based learning strategy. These findings indicate that literacy-based learning strategies are effective in fostering students' critical thinking by encouraging deep reading, analytical thinking, and the development of logical and reflective arguments.
Keywords: Learning Strategy; Literacy; Critical Thinking; Senior High School Students.	
Please cite this article: Syahputra, A., Aulia, Z., & Hidayat, M. R. (2025). The influence of literacy-based learning strategies on students' critical thinking skills at SMA Muhammadiyah 01 Medan. <i>Integrasi: Jurnal Studi Islam dan Humaniora</i> , 3(2), 94–106.	ABSTRAK Penelitian ini bertujuan untuk mengetahui pengaruh strategi pembelajaran berbasis literasi terhadap kemampuan berpikir kritis siswa di SMA Muhammadiyah 01 Medan. Penelitian ini menggunakan pendekatan kuantitatif dengan desain eksperimen semu (quasi-experimental). Populasi dalam penelitian ini adalah seluruh siswa kelas XI, dan sampel dipilih secara purposive. Teknik pengumpulan data dilakukan melalui tes kemampuan berpikir kritis yang diberikan sebelum dan sesudah perlakuan. Hasil analisis data menunjukkan bahwa terdapat peningkatan signifikan dalam kemampuan berpikir kritis siswa setelah penerapan strategi pembelajaran berbasis literasi. Hal ini membuktikan bahwa strategi pembelajaran berbasis literasi efektif dalam mengembangkan keterampilan berpikir kritis siswa, karena mendorong mereka untuk membaca secara mendalam, menganalisis informasi, dan mengembangkan argumen yang logis serta reflektif.
Page: 94-106	This is an open acces article under the CC-BY-SA lisencc (https://creativecommons.org/licenses/by-sa/4.0/).

A. Introduction

In today's rapidly changing world, education is no longer limited to the transmission of knowledge; it must also focus on developing higher-order thinking skills, including critical thinking. These skills are essential for students to analyze, evaluate, and make reasoned judgments in both academic and real-life contexts (Brookhart, 2010). Critical thinking is considered one of the most important competencies in 21st-century education, as it empowers students to become independent, reflective, and rational thinkers. According to Facione (2011), critical thinking involves purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference.

Despite its importance, many students at the senior high school level struggle with critical thinking. This is often due to teacher-centered instruction that emphasizes memorization rather than understanding, discussion, and reasoning (Paul & Elder, 2014). To address this issue, educators and researchers have recommended the integration of literacy-based learning strategies in classroom instruction. Literacy-based strategies encourage students to interact with texts, question ideas, and construct meaning through reading, writing, and discussion (Fisher & Frey, 2008).

Literacy, in the context of education, extends beyond the ability to read and write; it includes the capacity to think critically about what is read, to engage in dialogue, and to express ideas in coherent written form (OECD, 2018). Therefore, the adoption of literacy-based learning strategies is viewed as a powerful approach to foster critical thinking. These strategies place students in active roles where they are required to analyze information, synthesize perspectives, and draw conclusions based on evidence (McLaughlin & DeVoogd, 2004).

At SMA Muhammadiyah 01 Medan, the traditional instructional approaches have not fully supported the development of students' critical thinking skills. Teachers often rely on rote methods, and students are rarely given opportunities to evaluate content

critically or express opinions through structured argumentation. Observations and preliminary interviews at the school revealed that students frequently struggle to answer open-ended questions, formulate logical arguments, and support their opinions with textual evidence—an indication of low critical thinking development.

To improve this situation, the use of literacy-based learning strategies offers a promising solution. By embedding literacy tasks such as reading complex texts, engaging in discussion, and composing analytical essays, students are challenged to think deeper and more critically. According to Vygotsky's social constructivist theory, learning occurs best through interaction and dialogue. Literacy strategies, such as reciprocal teaching and collaborative annotation, encourage peer interaction and shared meaning-making, which are conducive to critical thinking development (Vygotsky, 1978).

Previous studies have shown a strong correlation between literacy practices and critical thinking improvement. For instance, Zygouris-Coe (2012) found that students engaged in content-area literacy activities demonstrated greater analytical skills and deeper comprehension. Similarly, Shanahan and Shanahan (2008) emphasize the role of disciplinary literacy in fostering critical habits of mind. When students engage with texts through questioning, analysis, and synthesis, they begin to mirror the thinking processes of experts within academic disciplines.

Furthermore, literacy-based learning is aligned with Bloom's taxonomy, which places evaluation and synthesis at the top of cognitive development. Activities such as writing critiques or debating issues help students progress beyond understanding to higher-level cognitive engagement (Anderson & Krathwohl, 2001). In the Indonesian educational context, the Ministry of Education and Culture has promoted literacy as a national priority through programs such as "Gerakan Literasi Sekolah" (School Literacy Movement). However, implementation often lacks integration with critical thinking objectives (Kemendikbud, 2017).

Many Indonesian teachers continue to face challenges in connecting literacy with higher-order thinking due to limited resources, lack of training, or rigid curriculum structures. As a result, students may engage in literacy activities without necessarily developing critical thought. The current study is grounded in the assumption that literacy-based learning strategies, when applied systematically and contextually, can lead to significant gains in students' ability to think critically and independently.

The research conducted at SMA Muhammadiyah 01 Medan aims to examine whether students who are taught using literacy-based strategies show better performance in critical thinking compared to those who are not. This investigation is relevant not only for the local school community but also for broader educational stakeholders seeking effective instructional models to enhance students' cognitive skills.

By examining the relationship between literacy strategies and critical thinking development, this study intends to offer empirical insights and practical implications for curriculum development, teacher training, and classroom practices. Ultimately, the integration of literacy-based learning is not simply about reading and writing; it is about nurturing thoughtful, questioning, and analytical minds who are capable of navigating complex information in an increasingly knowledge-driven society.

B. Method

This study applied a quantitative approach with a quasi-experimental design to examine the influence of literacy-based learning strategies on students' critical thinking skills. The design involved two groups: an experimental group that received instruction using literacy-based strategies and a control group that was taught using conventional methods. This design was chosen to allow for comparison while maintaining ecological validity in a real classroom setting.

The population of the study included all students of Grade XI at SMA Muhammadiyah 01 Medan. The sample was selected using purposive sampling,

focusing on two parallel classes with similar academic backgrounds and characteristics. One class was assigned as the experimental group, while the other served as the control group. This approach ensured comparability and minimized selection bias.

The independent variable in this study was the use of literacy-based learning strategies, which involved reading comprehension activities, writing reflections, and engaging in critical discussions. The dependent variable was students' critical thinking ability, measured through a standardized critical thinking test that included indicators such as analysis, evaluation, inference, and explanation.

Data collection was carried out using a pre-test and post-test administered to both groups. The test was adapted from validated critical thinking assessment tools to ensure accuracy and relevance. In addition to test scores, observations and teacher logs were used to monitor the implementation of the learning strategies in the classroom, adding contextual insight to the study.

Data analysis involved the use of descriptive statistics (mean, standard deviation) and inferential statistics, particularly the paired sample t-test and independent sample t-test, to determine whether there were significant differences in the critical thinking scores between the groups before and after the intervention. The level of significance was set at 0.05 to assess the statistical effect of the treatment.

To ensure validity and reliability, the instruments were reviewed by education experts and tested in a pilot study involving students from a similar background. Ethical considerations were also observed, including informed consent from participants, confidentiality of data, and approval from school authorities before conducting the research.

C. Results and Discussion

Research Findings

The research aimed to determine whether the implementation of literacy-based learning strategies had a significant effect on students' critical thinking skills. The findings were based on data collected from pre-tests and post-tests administered to both the experimental and control groups.

At the beginning of the study, both groups were given a critical thinking pre-test to assess their initial abilities. The average score of the experimental group was 61.4, while the control group scored 60.9. These results indicated that both groups had relatively similar levels of critical thinking before the treatment.

After implementing literacy-based learning strategies in the experimental group for six weeks, a post-test was conducted. The average score of the experimental group increased significantly to 82.3, while the control group's post-test average was only 68.7. This difference showed a substantial improvement in the experimental group compared to the control group.

The paired sample t-test showed that the increase in the experimental group's scores from pre-test to post-test was statistically significant at the 0.05 level ($p < 0.05$). This confirmed that the literacy-based learning strategy had a meaningful impact on enhancing students' critical thinking.

In contrast, the control group, which was taught using conventional methods, also showed some improvement, but the change was not statistically significant. This suggests that traditional learning approaches were less effective in stimulating higher-order thinking skills.

Further analysis using an independent samples t-test revealed a significant difference in post-test scores between the two groups ($t = 4.73, p < 0.05$). This result supports the hypothesis that literacy-based instruction contributes more effectively to the development of critical thinking than conventional instruction.

In addition to test scores, teacher observations indicated that students in the experimental group showed increased participation in classroom discussions. They were more willing to ask questions, express opinions, and challenge ideas presented in the texts.

Students in the experimental group also demonstrated greater depth in their written responses. Their essays reflected higher levels of analysis, reasoning, and synthesis, particularly when responding to argumentative or open-ended prompts.

Literacy-based strategies such as guided reading, text annotation, and reflective journaling encouraged students to engage with complex texts and apply critical thinking processes. Teachers noted that students were more motivated to complete tasks that required interpretation and evaluation.

Several students reported that they enjoyed the activities that involved peer discussion and group work, stating that it helped them to see different perspectives and think more deeply about the content. This aligns with the principles of social learning theory, which emphasizes learning through interaction.

The implementation of the literacy-based learning strategy also appeared to foster metacognitive awareness. Students became more conscious of their own thinking processes and were able to articulate their reasoning during classroom debates and writing assignments.

In the control group, meanwhile, students primarily relied on memorization of facts and teacher explanation. Their written work remained largely descriptive, with limited analysis or evaluation.

Based on classroom observation logs, students in the experimental group demonstrated better time management, focus, and independence during learning activities compared to their peers in the control group.

Overall, the results provide strong evidence that the integration of literacy-based learning strategies significantly improves critical thinking skills among senior high

school students. The gains observed were not only quantitative but also qualitative in terms of behavioral and cognitive engagement.

These findings confirm the theoretical assumption that reading, writing, and discussion are powerful tools for nurturing critical thinkers. Literacy-based learning, when applied systematically, can transform classroom dynamics and student outcomes.

Discussion

The findings of this study show a significant improvement in the critical thinking skills of students who were taught using literacy-based learning strategies. This improvement was evident not only in their post-test scores but also in their classroom participation, written responses, and overall cognitive engagement. These results reinforce the idea that literacy practices are essential in developing higher-order thinking skills in students.

The significant difference between the experimental and control groups supports the theoretical foundation proposed by McLaughlin and DeVogd (2004), which states that critical literacy strategies encourage students to examine, interpret, and question text-based information. In this study, students exposed to such strategies demonstrated a better ability to analyze arguments and express their reasoning both verbally and in writing.

One of the key observations in the experimental group was the shift in students' learning behavior. They were more active, collaborative, and reflective, particularly during discussions and literacy tasks. This aligns with Vygotsky's social constructivist theory (1978), which emphasizes that cognitive development is enhanced through meaningful social interaction and dialogue.

The use of literacy-based strategies such as text annotation, journal reflection, and argumentative writing allowed students to process information at a deeper level. These practices required them to connect ideas, evaluate different viewpoints, and draw reasoned conclusions—skills that are central to critical thinking (Facione, 2011).

In contrast, students in the control group, who followed traditional instructional methods, continued to rely heavily on memorization and teacher-directed explanations. Their responses in assessments tended to be superficial, lacking depth in reasoning or critical evaluation. This suggests that conventional approaches may fall short in cultivating critical thinking.

The effectiveness of the literacy-based strategy can also be attributed to its emphasis on student-centered learning. By giving students ownership of their learning through discussion, reading, and reflection, they were empowered to question assumptions and explore issues independently. According to Brookhart (2010), such autonomy is vital for nurturing critical thinkers.

Additionally, the integration of writing activities helped students to structure their thoughts logically and coherently. Writing is known to play a critical role in organizing mental processes and making thinking visible. The students' essays in the experimental group reflected better coherence, argumentation, and analytical depth compared to those in the control group.

Another contributing factor was the use of real-world texts and issues that students found relevant and meaningful. Authentic materials stimulated students' interest and encouraged them to relate academic content to their own experiences and perspectives, enhancing motivation and cognitive investment.

The collaborative nature of the literacy tasks, including group discussion and peer feedback, further enriched the learning environment. Students learned to consider multiple viewpoints, refine their arguments, and respectfully challenge each other's ideas. This process mirrors real-life critical discourse and promotes democratic learning habits.

The improvement in the experimental group also validates the framework of Bloom's revised taxonomy (Anderson & Krathwohl, 2001), where analyzing, evaluating, and creating are considered the highest levels of cognitive engagement.

Literacy-based instruction facilitated students' movement from lower-order to higher-order thinking.

Furthermore, the findings are in line with global education trends. According to the OECD (2018), integrating reading and thinking skills in the curriculum is essential for preparing students for 21st-century challenges. The success of this strategy in an Indonesian school context demonstrates its cross-cultural applicability and effectiveness.

While the findings are promising, they also highlight the need for teacher training and curriculum reform. Not all teachers are familiar with how to integrate literacy-based strategies effectively. Professional development in this area could help expand the benefits observed in this study to a broader range of classrooms.

The study also suggests that critical thinking does not emerge automatically from reading or writing activities—it requires intentional design and facilitation. Teachers must scaffold the learning process, ask probing questions, and create opportunities for students to reflect and revise their thinking.

Moreover, the role of assessment must evolve to support critical thinking development. Traditional tests may not capture the complexity of students' reasoning. Teachers should consider using performance-based assessments such as essays, debates, and project-based tasks to evaluate higher-order thinking more authentically.

In conclusion, the research findings confirm that literacy-based learning strategies are not only effective in improving academic performance but also in nurturing essential cognitive skills. Through carefully planned reading, writing, and discussion activities, students can become more thoughtful, analytical, and independent learners—an outcome that aligns with the core goals of modern education.

D. Conclusion

Based on the research findings, it can be concluded that the implementation of literacy-based learning strategies significantly enhances students' critical thinking skills. This improvement was demonstrated through the increase in post-test scores, more structured written responses, and higher levels of engagement in classroom discussions. The integration of reading, writing, and reflective dialogue helped students move beyond rote memorization to deeper analysis and evaluation of ideas.

The results also show that literacy-based strategies create a more student-centered and collaborative learning environment, which fosters independent thinking and intellectual curiosity. Students who participated in literacy-rich learning activities displayed better reasoning skills, the ability to construct logical arguments, and increased metacognitive awareness. These findings support previous studies and theoretical frameworks that link literacy practices with the development of higher-order thinking.

In summary, literacy-based learning is not only effective in improving academic outcomes but also plays a crucial role in shaping students into critical, reflective, and analytical thinkers. It is recommended that educators and curriculum developers consider integrating such strategies across subjects to promote deeper learning and better prepare students for the challenges of the 21st century.

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