

Improving Students' Reading Comprehension through Mind Mapping (The Case at Grade IX of SMPN 2 Surakarta)

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Abstract

Reading comprehension is vital in English language learning, especially in EFL contexts. One core sub-skill—making inferences—remains a significant challenge for many students. Using the Mind Mapping technique, this study aimed to improve students' inference-making abilities in reading narrative texts. This Classroom Action Research (CAR) was conducted in two cycles, utilizing Kemmis and McTaggart's planning, action, observation, and reflection. The study involved 32 ninth-grade students of SMPN 2 Surakarta in the even semester of 2025. Data were collected through pre-tests, post-tests, observation sheets, field notes, and student questionnaires. The results revealed a significant improvement in students' reading comprehension, with the average score rising from 68,37 in the pre-test to 77.06 in Post-Test 1 and 84.19 in Post-Test 2, with a 9.25% increase. Furthermore, 87.5% of students met the Minimum Mastery Criterion (KKM), which was set at 80, fulfilling the success criteria of the CAR. Students' ability to make inferences and their classroom engagement also improved. The findings indicate that mind mapping effectively enhances students' comprehension of narrative texts, fosters motivation, and encourages active participation in reading activities.

Keywords: *classroom action research; inference-making; mind mapping; narrative text; reading comprehension*

INTRODUCTION

Reading is widely acknowledged as a fundamental skill for individuals and students, critical not only within classroom instruction but also in extracurricular and real-world contexts (Carrell, 1989). In the Indonesian context, the Merdeka Curriculum emphasizes six core language skills—listening, speaking, reading, viewing, writing, and presenting—that are taught inclusively across various text types and contexts to support holistic language competence (Kementerian Pendidikan Kebudayaan Riset dan Teknologi, 2022). Within this framework, reading comprehension is regarded as a central component of language learning, particularly in English as a Foreign Language (EFL) classrooms (Ahmed, 2022).

Reading comprehension extends beyond surface-level decoding of words and sentences. It involves an active process of constructing meaning through interaction between textual information and readers' prior knowledge, experiences, and cognitive strategies (Snow, 2002; Wooley, 2011). One of the most crucial components of this process is inference-making, which allows readers to derive implicit meanings, establish causal relationships, and interpret unstated ideas embedded in the text. Inferencing skills are particularly important in EFL contexts, where

linguistic limitations and cultural distance often constrain learners' comprehension (Hollingsworth, 2007). Inferencing skills are essential for understanding texts at a deeper level; however, empirical evidence indicates that many secondary school students struggle to make inferences, particularly in EFL contexts where linguistic proficiency and cultural familiarity are still developing (Hezam et al., 2022).

In Indonesian junior high schools, reading difficulties are frequently observed in narrative texts, especially those originating from foreign cultures. Studies have shown that students often fail to interpret characters' motivations, moral values, and implied messages due to limited inferencing ability and insufficient background knowledge (Syafitri et al., 2021; Nuralimah et al., 2023). Narrative texts, which are mandated in the Grade IX curriculum, require students to comprehend both explicit story elements and implicit meanings conveyed through plot development, character actions, and cause-and-effect relationships (Anderson, 2003). Consequently, students' inability to make inferences often results in low reading achievement, as reflected in their failure to meet the Minimum Mastery Criterion (KKM). This condition was also evident in Grade IX D of SMP Negeri 2 Surakarta, where a substantial proportion of students demonstrated inadequate reading comprehension performance.

Narrative texts, which are commonly taught in Grade IX based on the Indonesian curriculum, require students to identify story elements and infer moral values, characters' motivations, and causal relationships (Anderson, 2003). From a literacy perspective, narrative texts play a significant role in fostering imagination, emotional engagement, and critical thinking, as they encourage readers to interpret sequences of events and understand perspectives embedded within the story (Derewianka, 1990). Narrative texts serve not only to develop imaginative and emotional engagement but also to improve critical reading skills by requiring readers to interpret sequences, motives, and outcomes within a story. However, the structure and language of these texts often require students to understand unstated information and relationships between characters, actions, and consequences—skills that hinge on effective inference making (Fitri et al., 2022; Hossain, 2024). Despite their curricular importance, narrative texts remain challenging for many junior high school students. Classroom-based evidence from SMP Negeri 2 Surakarta indicates that a substantial proportion of Grade IX students fail to achieve the Minimum Mastery Criterion (KKM) of 80 in reading comprehension. Observations revealed that students often rely on literal translation and teacher explanation, demonstrate limited ability to organize textual information, and struggle to infer characters' intentions or the moral messages of the story. These challenges highlight the need for instructional strategies that actively engage students and support deeper cognitive processing during reading.

One instructional approach that has gained considerable attention in reading pedagogy is mind mapping. Mind mapping is a visual strategy that enables learners to organize information around a central concept using branches, keywords, colors, and images (Buzan, 2005; Buzan & Buzan, 2006). Rooted in cognitive and constructivist learning theories, mind mapping supports meaningful learning by making abstract relationships visible and facilitating the integration of new information with existing knowledge. In the context of narrative reading, mind mapping allows students to visually structure story elements—such as characters, events, conflicts, and resolutions—thereby supporting comprehension, summarization, and analysis (Bromley, 1996).

Reading comprehension itself is widely conceptualized as an interactive process between the reader and the text, in which meaning is actively constructed rather than passively received (Wooley, 2011). Visual and student-centered strategies, such as mind mapping, have been shown to enhance this process by increasing learners' engagement and supporting deeper cognitive processing (Saori, 2020; Negara et al., 2021). Through visual representation, mind mapping helps

learners externalize their thinking, identify relationships among ideas, and bridge explicit and implicit information within the text, which is essential for inference-making.

A growing body of empirical research has documented the effectiveness of mind mapping in reading instruction across educational levels and EFL contexts. Raqqaad and Ismail (2020) reported that mind mapping significantly improved students' reading achievement and inferencing ability by helping learners organize ideas and identify key information. Similarly, Saori (2020) and Negara et al. (2021) found that mind mapping fostered greater engagement, participation, and deeper understanding during reading activities. More recent studies have emphasized its role in promoting collaboration and active learning, particularly when students work in pairs or groups to construct and discuss their mind maps (Nurdiana et al., 2023). Experimental and action research studies further confirm that mind mapping positively influences students' reading comprehension, critical thinking, and motivation (Ganito et al., 2022; Sagita et al., 2024). By providing a concrete representation of abstract narrative structures, mind mapping facilitates memory retention and supports learners in synthesizing complex information. These benefits are particularly relevant for EFL learners, who often require additional scaffolding to comprehend texts written in a foreign language.

Nevertheless, a critical review of the literature reveals a notable research gap. Most existing studies focus on general reading comprehension outcomes or overall academic performance, with limited attention to inference-making as a specific cognitive skill. Moreover, few studies have examined the focused application of mind mapping to improve inferencing skills in narrative reading at the junior high school level, particularly when the texts used are foreign narratives that pose additional linguistic and cultural challenges. Even fewer studies have employed a Classroom Action Research (CAR) design to investigate this issue in an authentic classroom setting.

The present study employs a Classroom Action Research (CAR) approach, allowing the researcher to collaboratively explore the implementation of mind mapping in a real classroom context. CAR is particularly suited for investigating practical interventions in education, as it enables iterative cycles of planning, acting, observing, and reflecting, and supports teacher-researcher collaboration to improve instructional practice (Kemmis & McTaggart, 1988). Against this backdrop, the present study positions mind mapping as a targeted instructional strategy to enhance inference-making in narrative reading among Grade IX students. The novelty of this study lies in its focused examination of inferencing skills within narrative reading using foreign texts, its application of mind mapping as a systematic visual scaffold, and its use of a Classroom Action Research design involving two cycles in an Indonesian junior high school context. Specifically, the study aims to: (1) examine the implementation of mind mapping in enhancing students' inference-making ability in reading narrative texts, (2) analyze the significant differences in students' reading performance before and after the intervention, and (3) explore students' perceptions and responses toward the use of mind mapping.

This study seeks to address this gap by concentrating on the use of mind mapping to improve students' inference making in reading skills using a Classroom Action Research (CAR) approach involving two cycles, which aims to provide a practical solution to the real challenges faced by English teachers in increasing students' comprehension of narrative texts. This study seeks to contribute both theoretically and practically to EFL reading instruction. The findings are expected to provide empirical evidence on the effectiveness of mind mapping for developing inference-making skills and to offer actionable insights for English teachers seeking to improve students' comprehension of narrative texts in similar educational contexts.

METHOD

This study employed a Classroom Action Research (CAR) project based on Kemmis and McTaggart's model, which consists of four stages: planning, acting, observing, and reflecting (Kemmis & McTaggart, 1988). This study was conducted at SMP Negeri 2 Surakarta in two cycles during the even semester of the 2024/2025 academic year, involving 32 students of class IX D as subjects of this research. It was conducted from February to April 2025.

The researcher collaborated with the English teacher to address the research questions, which allows both teachers and researchers to address classroom challenges and learn from real-world teaching experiences, to enhance the quality of learning practices. Such collaboration is essential in Classroom Action Research as it supports professional learning and the improvement of instructional quality. Data were collected in two forms: quantitative and qualitative. Quantitative data were obtained from students' reading comprehension test scores, including a pre-test and post-tests administered in each cycle. Qualitative data were gathered through classroom observations, field notes, interviews, student questionnaires, and analysis of students' mind maps to capture learning processes and classroom dynamics.

Data sources in this study consisted of primary and secondary data. Primary data were derived from students' test results, observations, interviews, and questionnaire responses, while secondary data supported the interpretation of findings. Quantitative data were analyzed descriptively to identify improvements in students' reading achievement, whereas qualitative data were analyzed thematically to examine changes in engagement, participation, and learning behavior. The success criterion was based on the Minimum Mastery Criterion (KKM) set by the school: a score of 80. The research would be considered successful if 75% or more of the students met this benchmark.

RESULTS AND DISCUSSION

This study aimed to examine the application of mind mapping in teaching reading of narrative texts, to analyze changes in students' inference-making ability before and after the implementation of mind mapping, and to explore students' responses toward the technique. Before the action research cycles, a pre-action study was conducted in Grade IX D to identify existing classroom conditions, instructional challenges, and students' reading comprehension levels. The findings from classroom observations, interviews, and initial assessments indicated that students experienced substantial difficulties in reading comprehension, particularly in making inferences, organizing ideas, and visualizing narrative content.

To obtain baseline quantitative data, a pre-test was administered before the implementation of mind mapping. The results showed that the mean score of students' reading comprehension was 68.37, which was below the school's Minimum Mastery Criterion (KKM) of 80. This finding confirmed that students' reading comprehension, especially their ability to infer implicit information from narrative texts, was unsatisfactory and required pedagogical intervention. Many students relied heavily on word-by-word translation and teacher explanations, demonstrating limited strategic reading skills. These conditions indicated the need for a more engaging and structured instructional approach that could support students in organizing textual information and developing deeper comprehension.

To address this issue, the researcher implemented mind mapping as a technique to enhance reading comprehension. The classroom action research was conducted in two cycles. Each cycle consisted of one meeting due to time constraints. Throughout both cycles, the researcher consistently applied the mind mapping strategy to help students overcome difficulties in making inferences and understanding texts more effectively. After reviewing both the observation and

test results from the first cycle, the researcher identified noticeable improvements in students' reading comprehension and overall classroom dynamics.

Cycle 1 results

In the first cycle, students were introduced to the structure and language features of narrative texts, as well as the basic concept and procedure of mind mapping. The teacher modeled how to construct a simple mind map by placing the title of the story at the center and branching out key narrative elements such as characters, setting, events, problems, and resolutions. Students then worked in pairs to create mind maps based on a given narrative text and participated in group discussions to share their ideas.

The results of Post-Test 1 indicated an improvement in students' reading comprehension. The average score increased to 77.06, and 21 out of 32 students (65.6%) achieved the mastery criterion. Although the target of 75% mastery had not yet been reached, the improvement from the pre-test demonstrated that mind mapping had a positive impact on students' reading performance. Qualitative data from classroom observations and field notes revealed notable changes in students' attitudes and engagement. Compared to the pre-action stage, students were more willing to participate, express their ideas, respond to questions, and follow instructions. The visual and collaborative nature of mind mapping appeared to capture students' interest and increase their motivation to engage in reading activities.

However, several challenges were identified during Cycle 1. Some students were still distracted by off-task behaviors such as chatting or completing assignments for other subjects. A few students did not fully engage in the tasks, either by copying peers' work or leaving their mind maps incomplete. From an academic perspective, students continued to struggle with identifying characters' motivations, interpreting implied meanings, and drawing conclusions based on contextual clues. These weaknesses suggested that while mind mapping supported general comprehension, students needed more explicit guidance and practice in inference-making.

Based on the reflection of Cycle 1, several revisions were made for Cycle 2. First, the teacher provided more targeted inference-focused exercises, emphasizing how to use context clues and prior knowledge to infer characters' motives and story messages. Second, clearer modeling of mind mapping was provided, including examples of how inferences could be visually represented in the mind map. Third, classroom management strategies were strengthened to ensure students completed tasks independently and remained focused throughout the lesson.

Cycle 2 results

Improvements were made in the lesson delivery in Cycle 2. In Cycle 2, improvements were made in lesson delivery and instructional scaffolding. A different narrative text was used to avoid repetition and maintain students' interest. The teacher explicitly guided students through the process of analyzing the narrative, identifying implicit information, and translating their understanding into a more detailed mind map. Students worked collaboratively in groups, allowing them to exchange ideas and clarify misunderstandings.

The results of Post-Test 2 showed a substantial improvement in students' reading comprehension, the class average rose to 84.19, exceeded the KKM. A total of 28 out of 32 students (87.5%) achieved scores above the mastery criterion, indicating that the success indicator of the research had been met. The improvement from Cycle 1 was 9.25%, and inference-making skills—particularly in character analysis, conclusion drawing, and predicting outcomes—showed marked enhancement. Upon completion of Cycle 2, a more positive classroom atmosphere and increased student motivation. The classroom environment improved: students were more focused, noise levels decreased, participation in group tasks increased, and students consistently responded

to instructions and completed their assignments. They also demonstrated better collaboration within their groups.

Qualitative findings further supported the quantitative results. Students demonstrated stronger inference-making skills, particularly in analyzing characters' motivations, concluding story events, and predicting possible outcomes. Classroom observations indicated a more positive learning atmosphere, with students showing higher levels of focus, reduced noise, and increased participation in group tasks. Students responded more consistently to instructions, completed assignments on time, and collaborated more effectively with their peers. Questionnaire responses also reflected positive perceptions of mind mapping, with students reporting that the technique helped them understand the text more clearly and made reading activities more enjoyable. In conclusion, for this Classroom Action Research (CAR) Cycle 1 and 2 indicate that using mind mapping in teaching reading not only facilitated students' reading comprehension but also effectively enhanced their engagement and understanding of narrative texts. Students' engagement and participation also increased, as evidenced by observation checklists and positive responses to the questionnaire. These findings align with earlier research emphasizing the effectiveness of visual tools in enhancing comprehension and critical thinking.

The findings of this study demonstrate that mind mapping significantly enhances students' reading comprehension, particularly their inference-making ability in narrative texts. The visual structure of mind maps enabled students to organize story elements systematically and see connections between ideas, which supported deeper comprehension. These results align with previous studies highlighting the effectiveness of visual learning tools in improving reading comprehension and critical thinking in EFL contexts. Moreover, the collaborative use of mind mapping contributed to increased student engagement and active learning. By working in pairs and groups, students had opportunities to discuss ideas, negotiate meaning, and learn from one another. This collaborative environment not only improved comprehension outcomes but also fostered positive classroom dynamics and learner confidence.

Overall, the results from Cycle 1 and Cycle 2 confirm that mind mapping is an effective instructional strategy for teaching reading comprehension in junior high school EFL classrooms. The technique not only improved students' academic achievement but also enhanced their motivation, participation, and understanding of narrative texts. Therefore, mind mapping can be recommended as a practical and sustainable approach for improving inference-making skills in reading instruction.

CONCLUSION

This study investigated the implementation of mind mapping as an instructional strategy to improve students' reading comprehension, particularly their inference-making ability, in narrative texts at SMP Negeri 2 Surakarta. The findings demonstrated that mind mapping significantly enhanced students' ability to comprehend and infer meaning from narrative texts. The visual structure of mind maps allowed students to systematically organize story elements, such as characters, settings, problems, and resolutions, and to identify the relationships between these elements. This visual representation helped students process information cognitively, facilitating deeper comprehension and retention of textual content. These findings are consistent with previous studies highlighting the effectiveness of visual learning tools, including mind mapping, in enhancing comprehension and critical thinking in EFL classrooms (Buzan & Buzan, 2006; Ganito et al., 2022; Sagita et al., 2024).

Before the implementation of mind mapping, students' reading comprehension was relatively low, as evidenced by the pre-test mean score of 68.37, which fell below the school's

Minimum Mastery Criterion (KKM) of 80. Observations during the pre-action phase revealed that students struggled with inference-making, identifying character motives, drawing conclusions, and predicting outcomes. Many students depended on literal translation and teacher explanations, demonstrating limited engagement and confidence during reading activities. This situation indicated the need for an interactive and visual strategy that could assist learners in constructing meaning from narrative texts independently and collaboratively.

The intervention was conducted in two cycles, each consisting of one meeting. In Cycle 1, students were introduced to mind mapping and learned to create visual representations of narrative elements, including characters, settings, problems, and resolutions. Students worked collaboratively in pairs and participated in group discussions. Post-test results showed a mean score of 77.06, with 65.6% of students achieving the mastery criterion. Observational data revealed improved engagement, motivation, and active participation; students were more willing to express ideas and respond to questions. However, some students remained off-task or dependent on peers, and difficulties in inference-making persisted (Buzan & Buzan, 2006; Ganito et al., 2022).

Despite these improvements, several challenges persisted in Cycle 1. Some students were distracted by off-task behaviors, including chatting or completing assignments for other subjects, while others failed to complete their mind maps or relied on peers' work. Academically, students continued to struggle with making inferences about character motives and story events. These challenges indicated the need for further scaffolding and targeted instruction focused on inference-making, alongside enhanced classroom management strategies to ensure task completion and independent learning. In response to these challenges, the second cycle incorporated revised strategies to enhance the effectiveness of mind mapping. The teacher provided clearer modeling of mind maps, demonstrated how to extract implicit information from texts, and introduced targeted inference exercises. Additionally, classroom management was reinforced to maintain focus and ensure that all students completed tasks independently. A different narrative text was used in Cycle 2 to sustain students' interest and reduce repetitive patterns, thereby maintaining engagement.

The post-test results of Cycle 2 indicated significant improvement. The class mean score increased to 84.19, with 28 out of 32 students (87.5%) achieving scores above the KKM. This increase of 9.25% from Cycle 1 demonstrated that the refined instructional strategies were effective in further developing students' inference-making skills. Qualitative observations revealed a more positive classroom atmosphere, characterized by increased student focus, higher participation in group tasks, and improved collaboration among peers. Students consistently responded to teacher instructions, completed assignments on time, and engaged actively in discussions. These findings corroborate previous research indicating that mind mapping not only improves reading comprehension but also enhances learner engagement and collaboration. (Mokosolang et. al., 2022)

The effectiveness of mind mapping can be attributed to several factors. First, the visual organization of textual information reduced cognitive load and facilitated meaningful connections among narrative elements. Second, collaborative mind mapping encouraged peer discussion and negotiation of meaning, promoting active engagement and deeper comprehension. Third, targeted inference exercises enhanced higher-order thinking, enabling students to identify implicit information, make predictions, and draw conclusions (Raqqaad & Ismail, 2020; Burns, 2025, in Tjeddin & Farrell, 2025). Collectively, these factors contributed to measurable gains in reading performance, classroom participation, and student confidence.

Overall, the findings demonstrate that mind mapping is an effective instructional strategy for enhancing reading comprehension and inference-making in EFL classrooms. The progressive

increase in post-test scores and observed improvements in classroom dynamics confirm its impact on academic achievement and learner engagement. These results align with prior research emphasizing the value of visual and collaborative strategies in EFL education (Buzan & Buzan, 2006; Ganito et al., 2022).

In conclusion, the study highlights the pedagogical benefits of integrating mind mapping into reading instruction. By providing visual representation, promoting collaboration, and targeting higher-order thinking skills, mind mapping enables students to better understand narrative texts and develop critical reading strategies. It can be recommended as a valuable strategy for English teachers aiming to enhance both learners' comprehension skills and engagement in reading activities. The findings of this study contribute to the growing body of evidence supporting visual and collaborative approaches in EFL teaching and provide practical guidance for teachers seeking to improve reading instruction through innovative, research-based strategies.

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