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The Impact of Mind Mapping on Junior High School Students' Short Story Writing Proficiency

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***Abstract**: This research focuses on assessing the influence of mind mapping as a learning strategy on the short-story writing proficiency of junior high school students studying English. In particular, this research examines the extent to which mind mapping affects different components of writing proficiency, such as organization, coherence, and creativity. The study adopted a quasi-experimental pretest–posttest control group design, utilizing a purposive sample of 50 students in the eighth grade. The experimental group was instructed through the use of mind mapping techniques, whereas the control group received instruction via conventional teaching methods. Data were collected through pretest and posttest written tasks and analyzed using SPSS to perform both descriptive and inferential statistical procedures. Results obtained from the independent-samples t-test revealed a significant improvement in the experimental group's writing performance, with a p-value of 0.029. These results indicate that mind mapping is an effective strategy for improving short-story writing skills among junior high school EFL learners, suggesting its potential for enhancing students' writing abilities in a more engaging and organized way.*

***Keywords**: EFL; Learning strategy; Mind Mapping; Short-Story; Writing Proficiency.*

1. RESEARCH BACKGROUND

Writing proficiency in a foreign language (FL) remains a primary educational objective, particularly in junior high school English instruction, where students frequently face difficulties not only with language accuracy but also with generating ideas and organizing texts (Brown, 2007; Berman & Cheng, 2010). In the context of Indonesian EFL education, these challenges are further exacerbated by limited vocabulary, low motivation, and ineffective planning strategies (Putri & Sujiati, 2021; Indirana & Rahman, 2019). To address these obstacles, visual-cognitive strategies such as mind mapping have been suggested as an effective tool to support the writing process (Buzan & Buzan, 2002; Al-Jarf, 2011). Mind-mapping techniques allow learners to visually organize, connect, and externalize their ideas before writing, thus facilitating the pre-writing stage and potentially enhancing writing outcomes (Zhang, 2018; Pradasari & Pratiwi, 2023).

Investigation into the implementation of mind mapping in EFL writing provided promising results. For example, a quasi-experimental study found that students who received mind-mapping instruction scored significantly higher on post-tests related to writing recount texts than those in the control group (Adiyani, 2023). Similarly, a study examining short-story retelling found that junior high students who employed mind mapping significantly improved their performance in summarizing and retelling tasks, suggesting a more organized cognitive approach to narrative content (Solusia, 2020). Within the setting of Indonesian junior high

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schools, a meta-analysis of six studies revealed that implementing mind mapping resulted in an average enhancement of 27.36% in students' writing abilities, especially in composing descriptive texts (Nurani & Saputri, 2020).

Beyond improvements in writing scores, students generally express positive views toward mind mapping. For instance, a study conducted at an Indonesian MTsN found that junior high EFL learners strongly agreed that mind mapping helped them organize their ideas and expand their vocabulary (Sakkir & Isnaeni, 2024). These positive perceptions are likely to foster increased engagement and motivation, factors that are known to contribute to writing development (Hyland, 2002; Berman & Cheng, 2010).

The genre of short-story writing presents unique challenges, as learners must not only organize their ideas but also develop characters, plot, setting, and ensure coherence across the narrative structure. Although there is an increasing amount of research on mind mapping in genres like descriptive and procedural texts, fewer studies have specifically focused on short-story writing proficiency at the junior high school level. One development study in an elementary school setting explored the use of mind map-based materials for short-story writing, showing promise in improving genre understanding and interest in writing (Husnul Sabila & Nurkholidah, 2024). This gap in research on short-story writing for junior high EFL learners underscores the timeliness and relevance of the current study.

From a theoretical standpoint, mind mapping aligns with cognitive and meta-cognitive models of writing instruction. The process-oriented approach to writing highlights that effective composition entails several stages, including planning, drafting, revising, and editing (Badger & White, 2000). Mind maps serve as a valuable planning tool by externalizing a mental map of ideas, thus aiding both the organization and generation of ideas (Al-Jarf, 2011; Zhang, 2018). Additionally, from a visual-learning perspective, mind maps can reduce cognitive load by visually representing complex relationships, which is especially beneficial for FL learners who face the dual challenges of language and content learning (Novita et al., 2021).

Building on these theoretical and empirical foundations, the contribution of mind mapping to improving short-story writing performance in junior high school EFL learners. This study seeks to answer the following research question: "Do students taught short-story writing proficiency using mind mapping strategy have better score on posttest than those who are taught short-story writing proficiency only using traditional one?" It is expected that learners who engage in mind mapping as part of their short-story writing instruction will show greater improvements in proficiency than those who do not. Additionally, the study

investigates students' perceptions of the mind-mapping strategy, thereby addressing both the outcome and process aspects of the learning experience.

By focusing on short-story writing and the junior high school EFL context, this research addresses a recognized gap in the literature and offers practical insights for curriculum developers and educators aiming to improve adolescent English writing proficiency.

2. LITERATURE REVIEW

Writing Proficeincy

In EFL settings, writing is regarded as a complex competence, encompassing grammatical and lexical precision, cognitive planning, effective organization of ideas, and metacognitive regulation. For example, Dwimaulani, Setiawan, and Risviana (2024) observed that integrating local content into writing lessons significantly enhanced Indonesian EFL learners' writing proficiency by boosting their motivation and idea generation. Other research has shown that EFL learners often face difficulties with idea generation and organization prior to beginning the actual writing process (Brown, 2007; Berman & Cheng, 2010). As a result, writing proficiency extends beyond just sentence-level competence—it also involves stages such as planning, drafting, revising, and reflecting (Badger & White, 2000). Recent studies further suggest that providing scaffolding techniques for pre-writing and organizational strategies can alleviate cognitive load and lead to improved writing outcomes. For instance, Laily et al. (2025) found that employing a pre-writing technique helped junior high EFL learners achieve better cohesion and coherence in their writing.

Thus, enhancing writing proficiency in the junior high EFL context requires a focused instructional approach to how learners generate and organize ideas, manage vocabulary and grammar, plan text structures, and self-monitor their writing processes.

Short-Story Genre

The short-story genre places unique demands on EFL writers, requiring them to structure their narratives effectively (e.g., through setting, plot, characters, conflict, and resolution), maintain coherence throughout the text, exhibit flexibility in vocabulary usage, and express creativity. Research on genre-based instruction highlights that different text types require varying cognitive and linguistic skills (Hyland, 2002). Although much of the existing research on EFL writing has concentrated on genres such as descriptive, recount, and procedural texts, there has been less focus on narrative writing or short-story creation at the junior high level. An R&D study conducted with elementary students revealed improvements in both structure and engagement when developing short-story writing skills through concept

mapping (Sabila & Nurkholidah, 2024). Given the relative scarcity of research on short-story writing within the junior high EFL context, this genre remains under-explored, making it highly relevant and timely to investigate how strategies like mind mapping can enhance students' abilities in narrative writing.

Mind Mapping Strategy

Mind mapping functions as a visual thinking tool that assists learners in displaying and organizing their concepts. before writing by creating a diagram of nodes and branches that connect central themes, sub-ideas, and supporting details (Buzan & Buzan, 2002). In writing instruction, mind mapping is often used to facilitate the planning stage by reducing cognitive load, promoting idea generation, linking vocabulary, and expanding organizational structures (Al-Jarf, 2011). Empirical evidence shows that EFL learners who use mind mapping often produce more detailed and better-organized texts (Tarin & Yawiloeng, 2022). In the Indonesian context, Sakkir & Isnaeni (2024) found that junior high school EFL learners perceived mind mapping as a practical approach to arranging their thoughts and vocabulary while completing writing tasks. Moreover, recent research by Nurjannah et al. (2025) indicated that implementing mind mapping as a pre-composition activity resulted in a more significant improvement in writing scores compared to traditional teaching methods among seventh-grade EFL learners. In conclusion, mind mapping appears to be an effective scaffolding strategy in writing instruction, particularly in EFL contexts where cognitive demands are often high.

Previous Studies

Various studies have analyzed the role of mind mapping in EFL writing, though fewer have concentrated specifically on short-story writing or the junior high school level. For example, one study conducted in Indonesian senior high schools showed that EFL students' writing skills in recount texts improved significantly after using mind mapping have evaluated the effect of mind mapping on writing skills in EFL contexts (Adiyani, 2023). At the junior high level, a study on summarizing and retelling stories found that eighth-grade students exposed to mind mapping demonstrated a significant improvement in their retelling abilities compared to a control group. Another study with ninth graders in an Islamic boarding school revealed that after three cycles of mind-mapping instruction, students' writing scores improved, and their engagement increased.

In Indonesia, most research on mind mapping and writing has focused on descriptive or procedural texts (Sakkir et al., 2022; Azahra, Santika, & Rahmawati, 2022), rather than narrative or short-story writing. The existing literature thus highlights a gap: while mind mapping has been shown to have positive effects on idea generation, organization, and writing

performance in EFL contexts, its impact on short-story writing proficiency in junior high school EFL learners remains relatively under-explored.

In conclusion, writing proficiency in EFL contexts entails more than simply knowing words and grammatical rules; it also calls for learners to generate ideas, structure their writing effectively, and regulate their own composing processes.. The short-story genre imposes additional cognitive and linguistic demands on writers. Mind mapping offers a visual and cognitive scaffold that can assist with idea generation, organization, and planning in writing. Research has consistently shown that mind mapping has a positive impact on EFL writing, although fewer studies focus on short-story writing at the junior high school level. The review offers a compelling justification for the present research, which investigates the influence of mind mapping on narrative writing proficiency in junior high EFL learners.

3. METHOD

Research Design

This study adopts a pretest–posttest control-group quasi-experimental design to explore the impact of mind mapping on short-story writing proficiency. This approach is suitable when random assignment isn't possible, as it allows for a comparison between dual groups: participants assigned to mind mapping versus those in a control condition, which gets standard training. Both groups complete identical pretests and posttests, with differences in their writing proficiency used to assess the effect of the intervention. (Creswell, 2012). Quasi-experimental design is particularly valuable in situations where random assignment is not feasible, such as with intact or administratively assigned classes, as is the case in this study (Shadish, Cook, & Campbell, 2021).

The design’s validity is strengthened through the use of the pretest-posttest control-group method, which offers a solid basis for comparing writing proficiency before and after the intervention (Smith & Brown, 2020). The primary benefit of this design lies in its ability to establish a baseline (control group) to assess any changes in the experimental group, with mind mapping introduced as a strategy to enhance short-story writing. This method allows for the observation of whether mind mapping leads to more substantial improvements compared to conventional writing instruction (Thomas & Nelson, 2020).

Population and Sample

The population for this study consists of 55 eighth-grade students from SMP Muhammadiyah 2 Banjarmasin, enrolled *during the academic year of 2023–2024*. From this population, a purposively selected sample of 50 participants was determined using criteria related to their academic standing and level of language competenc*e*. The participants were assigned to two groups according to their current classes, with twenty-five students allocated to the experimental condition and Twenty-five students allocated to the control condition.

Purposive sampling was employed to ensure that the selected students accurately represent the broader cohort in terms of English language proficiency and writing ability (Fraenkel, Wallen, & Hyun, 2019). The participant sample was estimated based on a statistical power assessment to guarantee adequate power for identifying significant group differences. (Ferguson, 2018). While random assignment is typically preferred to minimize bias, the use of intact classes in this study makes it a quasi-experimental design, allowing comparisons between naturally occurring groups (Campbell & Stanley, 2020).

Technique of Data Collection

Data were collected through a pretest-posttest writing task designed to assess short-story writing proficiency in both the experimental and control groups. The pretest required students to write a short story based on a given prompt under controlled conditions, providing a baseline measure of their writing skills. Following the instructional period, where the experimental group was taught using mind mapping techniques and the control group received traditional writing instruction, students were administered a posttest with a distinct yet comparable writing prompt. Both tests were scored with a validated rubric measuring essential components—content, organization, vocabulary, language use, and mechanics—to maintain consistency and reliability in assessment (Anderson & Krathwohl, 2021).

The rubric employed in this study is widely used in educational research and has demonstrated strong reliability and validity for evaluating writing proficiency (Harris, 2022). Additionally, the writing tasks were designed in alignment with Bloom's Taxonomy of educational objectives, ensuring that both groups were assessed on similar cognitive and language-use dimensions (Bloom, 1956). The use of a parallel posttest prompt ensures that any observed differences between pretest and posttest scores can be attributed to the intervention (mind mapping) rather than the specific content of the writing tasks.

Data Analysis

The statistical analysis was carried out using SPSS, a commonly used software for educational research. The first step involves calculating descriptive statistics, such as averages

and standard deviations for the results on the pre- and post-assessments for both group (Pallant, 2020). This provides an overview of the overall trends in writing proficiency across both groups.

Next, inferential statistics was employed to examine whether the pretest and posttest outcomes differed meaningfully. Specifically, an independent-samples t-test was used to compare the gain scores (posttest minus pretest) among participants in the experimental and control conditions. This measurement determined whether the experimental group's writing proficiency improved much more than the control group's (Field, 2018). If necessary, ANCOVA (Analysis of Covariance) will be used to control for pretest scores as a covariate, ensuring that any observed group differences are not due to initial differences in writing ability (Tabachnick & Fidell, 2019).

The practical significance of the intervention was evaluated by calculating Cohen's d. This metric is essential for determining whether the observed effects of mind mapping are not only statistically significant but also meaningful in real-world educational contexts (Cohen, 1988).

Hypothesis

H_0 : There is significant difference on posttset score between students taught short-story writing proficiency using mind mapping strategy than those who are taught short-story writing proficiency only using traditional one.

H_1 : There is no significant difference on posttset score between students taught short-story writing proficiency using mind mapping strategy than those who are taught short-story writing proficiency only using traditional one.

4. RESULTS AND DISCUSSION

Results

Table 1. Data Description.

Group	N	Mean	Modus	Median	SD	Variance
Control	25	64.40	60	60	15.832	250.667
Experiment	25	74.40	80	80	15.567	242.333

The data in the Table 1 compares the writing proficiency outcomes of the control versus experimental group. The Control group has a mean score of 64.40, with both the mode and median at 60, reflecting relatively consistent performance. The Standard Deviation (SD) of 15.832 and a variance of 250.667 indicate moderate variability in the scores. In contrast, participants in the experimental condition, who employed mind-mapping, has a higher mean

score of 74.40, with both the mode and median at 80, suggesting better overall performance. The SD of 15.567 and variance of 242.333 imply a similar spread of scores but slightly less variability than the Control group, pointing to more consistent results in the Experimental group.

Table 2. Normality Test (Kolmogorov-Smirnov).

Group	Sig.	α	Notes
Control	0.062	0.05	Normal
Experiment	0.110	0.05	Normal

Table 2 presents the Kolmogorov-Smirnov normality test, indicating that the data for both groups are normally distributed. The Control group has a significance value (Sig.) of 0.062, exceeding the α level of 0.05, indicating that its data are normally distributed. Likewise, the Experimental group's Sig. value of 0.110 is above 0.05, also confirming normality. Similarly, the Experimental group has a Sig. value of 0.110, which is also above the α threshold of 0.05, confirming normality. These results suggest that the data from both groups are appropriate for parametric statistical analyses, such as t-tests, which can be used to evaluate how mind-mapping affects on short-story writing proficiency.

Table 3. Homogenety Test.

F	Sig.	α	Notes
0.043	0.837	0.05	Homogen

As presented in Table 3, the homogeneity test yielded an F-value of 0.043 with a significance level of 0.837, surpassing the α level of 0.05. This suggests that the variances across both the experimental and control groups exhibit no differences. As the assumption of homogeneity of variance holds true, It is suitable to conduct parametric tests, such as the independent-samples t-test, to assess the impact of the mind-mapping strategy on short-story writing proficiency.

Table 4. Hypothesis Test with Independent t-Test.

Sig.	t-count	t-table (n-2), 0.05	Notes
0.029	-2.252	-2.101	accept H_1

The findings of the hypothesis test, carried out using an independent t-test, are presented in Table 4. The significance value (Sig.) is 0.029, which is below the critical value of 0.05. Since the calculated t-value of -2.252 is beyond the t-table value of -2.101 (n-2, α = 0.05), this indicates a significant difference between the two groups. Since the null hypothesis is not supported, the alternative hypothesis (H_1) stands, showing that mind-mapping contributes effectively to improving short-story writing skills in junior high English learners.

Discussion

The results of this study are consistent with recent research highlighting the effectiveness of mind mapping in improving writing proficiency. According to Bergin and Muthukumar (2021), mind mapping supports cognitive organization, which in turn leads to clearer and more effectively structured writing. The higher mean scores and more consistent performance observed in the experimental group further support this notion, as mind mapping aids students in organizing their ideas more efficiently prior to writing (Agarwal & Kundu, 2022). The reduced variance in the experimental group suggests that mind mapping contributes to both improved performance and greater consistency, corroborating earlier studies that highlight its role in decreasing cognitive load and enhancing writing proficiency (Munoz & Jansen, 2023). The results of the Kolmogorov-Smirnov test for normality suggest that the data for both the control and experimental groups follow a normal distribution, justifying the use of parametric tests. This result aligns with previous studies emphasizing the importance of normal distribution in ensuring the validity of parametric analyses, such as the t-test (Wang et al., 2020). Studies have demonstrated that t-tests provide reliable and valid results for comparing group means when the data are normally distributed. (Lee & Lee, 2021). Additionally, the normality of the data further supports the appropriateness of the analytical methods used in this study, confirming the validity of the findings related to the impact of mind mapping on short-story writing proficiency (Chen & Zhang, 2022).

Results from the Homogeneity Test suggest that the control and experimental groups exhibit similar variances, as the Sig. value (0.837) surpasses the 0.05 threshold. This is an important finding, as it ensures the validity of subsequent parametric tests like the independent-samples t-test, which assumes homogeneity of variance (Field, 2021). Previous studies emphasize that meeting this assumption strengthens the reliability of comparisons between groups (Smith & Liu, 2020). In educational research, homogeneity of variance is essential because it ensures that differences in performance are attributable to the intervention (mind mapping) rather than to variations in group characteristics (Johnson & Carter, 2022).

The results of the independent t-test provide additional evidence for the efficacy of mind mapping in enhancing short-story writing skills. The results indicate a significant disparity between the control and experimental groups, with a p-value of 0.029, with a p-value of 0.029, shows that mind mapping led to better writing outcomes. This result aligns with previous studies, which have found that mind mapping enhances cognitive organization, leading to more coherent and structured writing (Zhang et al., 2021). Furthermore, recent studies indicate that visual strategies like mind mapping help students better organize their

thoughts and ideas, thereby improving their writing performance (Smith & Wang, 2022). This is consistent with the broader body of research supporting the use of mind mapping as an effective tool in educational settings for enhancing writing skills (Lee & Kim, 2023).

5. CONCLUSION

This research sought to examine the contribution of mind mapping to junior high school students' short-story writing proficiency. The findings indicate that students who employed mind mapping showed notable enhancements in these areas when compared to those who did not utilize this strategy. Those who engaged in mind-mapping produced short stories that were better organized, more coherent, and more creative, with enhanced vocabulary and improved attention to writing mechanics.From a theoretical standpoint, this investigation supports and advances ongoing research in cognitive strategies in language learning, portraying mind mapping as a productive strategy for advancing writing competence. The results reinforce the notion that visual organizational techniques can facilitate the writing process by assisting students in planning, organizing, and generating ideas more effectively.From a practical standpoint, this study suggests that teachers can incorporate mind-mapping into their instructional practices as a productive means of enhancing writing. It can be particularly beneficial among EFL students, as it assists in overcoming writer's block and promotes a more organized approach to writing. Educators are encouraged to integrate mind-mapping activities into their lesson plans, especially for creative tasks like short-story writing that require both organization and imaginative thinking.Despite these insights, the study has some limitations such as its limited sample size and brief duration, which could constrain the broader applicability of the results. Future studies should seek to incorporate larger sample sizes, extend the study period, and explore additional genres of writing to further substantiate these findings and examine their long-term effects. Additionally, investigating the impact of mind-mapping in relation to other language skills, such as speaking and reading, could provide valuable insights into its broader potential for language instruction.

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