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The Effectiveness of the Mind Mapping Technique in Improving Students' Ability to Organize Ideas in Writing Descriptive Texts

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Abstract

This study examines the effectiveness of the Mind Mapping technique in improving students' ability to organize ideas when writing descriptive texts at one public Islamic school in West Lombok. This study used a quasi-experimental design, consisting of two groups of seventh-grade students: an experimental group (using mind mapping) and a control group (without mind mapping). Before the treatment was administered, students' initial writing ability was relatively low, indicated by a mean pre-test score of 60.25. This suggests that limited skills in organizing ideas are low. Mind Mapping, defined in this study as a visual technique that helps students organize ideas, was implemented during three learning sessions using the Right-Column Mind Mapping method. Data obtained from pre-test and post-test activities involving writing tasks describing a person were analyzed using independent sample t-tests in SPSS 31, including tests of normality and homogeneity, to determine the significance of differences between the two groups. The findings showed that the experimental group experienced significant improvement, with their mean score increasing from 60.25 to 79.42 on the post-test, an increase of 19.17. Meanwhile, the control group's improvement was only 10.41 points. An independent sample t-test showed that this difference was statistically significant ($p = .001 < .05$). Further analysis revealed that Mind Mapping significantly improved three aspects of idea organization: unity, completeness, and coherence. Thus, the null hypothesis (H_0), which stated that Mind Mapping did not significantly improve students' ability to organize ideas, was rejected. With these findings, teachers can implement Mind Mapping as an effective pre-writing strategy to help students plan and organize ideas more systematically.

Keywords: Mind Mapping; Descriptive Text; Idea Organization; Writing Skills.

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INTRODUCTION

Writing is one of the key components of language learning, as it allows learners to clearly and logically express their thoughts (McCutchen, 2011). Therefore, within the Merdeka curriculum in Indonesia, which is based on project learning and the formation of an active and high-quality style of thinking, more attention is paid to writing. Students not only master the necessary language competence but also develop their creativity, critical mindset, and the ability to convey thoughts through text.

Among the various types of writing, descriptive writing is an important text in the learning of junior high school students. Descriptive writing allows students to describe people, places, and objects using sensory details, thus developing observation and analysis skills (Gerot & Wignell, 1994). Descriptive writing helps students develop clarity and coherence. Therefore, this text can be established as a foundation for developing students' overall language skills. Unfortunately, most students are not well organized in their writing and produce texts that are unclear and difficult to understand.

Empirical evidence obtained in classroom observations and interviews at SMP Plus Miftahul Falah, Bajur, West Lombok, indicates that the students have significant difficulties while organizing ideas during the writing process. In the first informal classroom observation in this school, the English teacher estimated that around 70% of seventh-grade students have difficulty in organizing their ideas in writing descriptive texts. The result of such a difficulty is indicated through their descriptive texts, which are often fragmentary and incoherent. This confirms the increasing demand for appropriate instructional strategies that can help them overcome these difficulties.

This problem has been corroborated by some studies that point to the fact that students' low organizational ability is caused by a lack of practice and feedback, which could allow them to develop a certain writing strategy (Aunurrahman et al., 2022). These problems become more relevant in rural schools where the input of English is very limited and the majority of teaching relies on traditional approaches; the acquisition of systematic writing skills is problematic. These conditions breed long-lasting problems in creating well-structured texts.

The application of the Mind Mapping approach in this study is grounded in information processing and constructivist theories of cognition. Information processing theory holds that writing is a complex process as students plan, organize, and revise their ideas before they put words on paper (Hyland, 2015). Constructivist learning theory supports the view that students actively play a leading role in constructing meaning by visualizing, organizing, and linking ideas before actual writing takes place (Buzan & Buzan, 2006). As a tool of visualization and cognitive aid, Mind Mapping supports such processes by enabling learners to express and systematically organize their thoughts in a form that favors comprehension and creativity.

The benefits during the pre-writing stage are that Mind Maps help students achieve unity by connecting all information to one central idea, and can help them write logically (Davies, 2011). Furthermore, Sujana (2012) emphasized that Mind Maps encourage active and engaging learning, while Buzan (2024) redefined Mind Maps as interactive digital thinking tools that enhance students' creativity and perception. Furthermore, Muştu (2024) stated that Mind Maps function for students to remember and connect knowledge visually. These studies strengthen that this method is effective in improving the students' writing.

Previous research on the Mind Mapping technique has proven that this technique is effective in improving writing skills, but most of the studies were conducted on descriptive writing about places and objects, with a concentration on writing skills in general. These studies were conducted by Crestiani (2015), Bukhari (2016), and Lastari & Hadi (2018). However, research on the application of the Mind

Mapping technique to descriptive writing about people, which contains challenges in integrating physical attributes and personality, and focuses on organizing ideas, is completely lacking, and it has not been discussed. Furthermore, the context of rural schools with limited exposure to English is also still underexplored in this regard. Therefore, with this study, this gap is filled because it is conducted comprehensively to determine the effectiveness of the Mind Mapping technique in improving the organization of ideas in descriptive texts about people in this educational context.

Describing a person is very different from describing other things because it requires a logical integration of physical and personality traits. Unlike objects or places, which tend to be straightforward or concrete, describing people requires abstract qualities related to character and behavior combined with observable features. This makes organizing ideas much more complex, especially for junior high school students. Therefore, effective methods in descriptive writing about people serve an essential purpose for improving the overall writing skills of students.

The existing challenge in the students' organization of thoughts and the advantages, this study aims to explore the effectiveness of the Mind Mapping technique in improving students' ability to organize ideas in descriptive writing in junior high school.

METHOD

This research follows a quantitative approach, according to Creswell & Creswell (2017), using a quasi-experimental procedure that implies a control and an experimental group. The objective is to assess the effectiveness of the mind-mapping technique in enhancing students' ideational organization skills in writing descriptive essays. In this design, the students were divided into two classes: one in which the intervention of Mind Mapping was implemented (experimental group) and another that received standard writing instruction without the incorporation of Mind Mapping (control group).

Research Participants

The total number of students selected for the study was 48, divided into two classes. One class, 7A, was used as the experimental class, and the other class, 7B, served as the control class. For reasons of ensuring homogeneity between groups, the classes were selected with regard to academic strength and similar initial ability. The students' age bracket ranges from approximately 12 to 13 years, with equal numbers of boys and girls in each group. The experimental and control class groups were selected by their English teachers and based on their ability to write descriptive texts. However, to minimize selection bias, homogeneity tests and normality checks on pre-test scores were conducted.

Research Instrument

A writing test with essay-type format was administered as both a pre-test and a post-test as the main data collection instrument. Writing tasks involved the description of a person, such as a friend, teacher, or family member; students were expected to produce at least one paragraph within 60 minutes. The scoring rubric used to evaluate their essays was adapted from Jacob (1987) and validated by the school's English teacher. The said rubric assesses three dimensions in writing, namely: unity,

completeness, and coherence (Brown, 2004). The score range for each criterion was from 50 to 100. These headings detailed how well the main idea was focused, the sufficient amount of development of details to support the main idea, and the logical sequence between ideas with transition words that connect them.

Procedures

The treatment for the experimental group consisted of three 40-minute instructional sessions, summing up to six classroom hours in total. During the sessions, students were introduced to and instructed in creating Right Column Mind Maps-a form of Mind Mapping that is done linearly from left to right-about physical features, personality traits, and hobbies. Teaching included teacher modeling, individual and group practice in constructing Mind Maps and transforming them into coherent written texts, as well as presentation and peer discussion for deepening understanding and giving constructive feedback. The teacher regularly guided the students to connect ideas logically and to write clearly. Throughout the treatment, samples of Mind Maps were used for visual scaffolding. For comparison, the conventional instruction given to the control group placed direct teaching on descriptive text structure, vocabulary pertaining to physical and personality characteristics, and traditional writing exercises without using any visual pre-writing tools such as Mind Mapping. The same amount of instructional time and writing topics was given to both the experimental and control groups.

Data Analysis

The SPSS software was used to analyze data and test the hypothesis of this study based on the procedures suggested by Landau and Everitt (2003). This method analyzes the effectiveness of using the mind mapping technique in enhancing the skills of students in writing descriptive texts. This was done through a comparison between the students' pre-test and post-test scores. To get valid and accurate data analysis, the following steps were followed in conducting the data analysis:

1. Normality and Homogeneity Tests

   Before analyzing to test the hypothesis, it is important to ensure that the data meet the basic assumptions for statistical testing. The normality test is useful to determine whether the data is normally distributed. Additionally, one needs to conduct the test for homogeneity to determine whether the variances for the two groups are uniform and, therefore, fair to compare.
2. Statistical Analysis

   After conducting normality and homogeneity tests and finding that the results are normally distributed and homogeneous, the next step is to test the hypothesis using an independent t-test. This test involves comparing the average scores of the experimental and control groups. This hypothesis test will determine whether there are significant differences in students' writing abilities, based on the pre-test and post-test results.

RESULT AND DISCUSSION

A total of 48 seventh-grade students participated in the research, divided into an experimental group, Class 7A, and a control group, Class 7B. Each group was given a pre-test and a post-test after three instructional sessions. The experimental group was taught by using the Right Column Mind Mapping technique, while the control group received instruction through conventional writing methods.

Table 1. Students Score

Class	Score	
Experimental	Pre-Test	60.25
	Post-Test	79.42
Control	Pre-Test	61.38
	Post-Test	71.79

Based on the data, the average pre-test score of the experimental class was 60.25. After receiving the Mind Mapping treatment, the average post-test score increased to 79.42, with an average increase of 19.17 points. This result shows that there has been a significant improvement in organizing ideas. Meanwhile, the average pre-test score in the control group was 61.38, with an average post-test score of 71.79 at an average increase of 10.41 points. Though there was an increase in the control class, it had been far lower than that of the experimental class.

Table 2. Result of Group Statistic

Group Statistics

	Class	N	Mean	Std. Deviation	Std. Error Mean
Result	Post-Test Experimental Class	24	79.42	4.809	.982
	Post-Test Control Class	24	71.79	4.180	.853

Descriptive statistics for the experimental and control groups confirm that, following the treatment of Mind Mapping, the experimental group significantly improved their ability in idea organization. The experimental group has a mean post-test score of 79.42 with a standard deviation of 4.809. For the control group, the mean post-test score was 71.79 with a standard deviation of 4.180. This indicates that the difference in mean score and standard deviation is very different between the experimental and control groups.

Conducting a normality test was an important step to check whether the sample data were normally distributed, which was necessary before applying the T-test. This study used the Shapiro-Wilk test because the sample size was small, with only 48 students. The hypotheses were:

If Sig. > .05, H_0 was accepted → the data were normal.

If Sig. < .05, H_0 was rejected → the data were not normal.

Table 3. Normality Test

Tests of Normality

	Class	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
Result	Pre-Test Experimental Class	.120	24	.200*	.943	24	.192
	Post-Test Experimental Class	.173	24	.060	.944	24	.202
	Pre-Test Control Class	.159	24	.121	.939	24	.156
	Post-Test Control Class	.145	24	.200*	.982	24	.929

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The data in Table 3 show that the pre-test scores of the experimental group (p = .192 > .05) and the control group (p = .156 > .05) were normally distributed. Likewise, the post-test scores of the experimental group (p = .202 > .05) and the control group (p = .929 > .05) also met the normality assumption. The data in this investigation were found to follow a normal distribution since all significant values were above 05. To determine whether the survey data showed consistent variance, the homogeneity test was employed. Following the normalcy test, this one was carried out. The researcher used SPSS software to conduct a statistical analysis to examine homogeneity. The following were the hypotheses for this test:

If Sig. The p-value was greater than 0.05, which indicates that the variances were homogeneous, so H_0 was approved.

If Sig. Since the p-value was <.05, indicating that the variances were not homogeneous, then H_a was acceptable.

Table 4. Test of Homogeneity of Variances Pre-Test

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Result	Based on Mean	3.126	1	46	.084
	Based on Median	2.873	1	46	.097
	Based on Median and with adjusted df	2.873	1	40.025	.098
	Based on trimmed mean	3.139	1	46	.083

The significance value for the pre-test scores of the experimental and control groups was .084, which was greater than .05. This indicated that the two classes had equal variances. Therefore, it was concluded that the pre-test scores of both classes were homogeneous.

Table 5. Test of Homogeneity of Variances Post-Test

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Result	Based on Mean	.510	1	46	.479
	Based on Median	.311	1	46	.580
	Based on Median and with adjusted df	.311	1	44.789	.580
	Based on trimmed mean	.479	1	46	.492

The post-test scores of the experimental and control classes had a significance value of .479, greater than the .05 threshold. This indicated that the variances of the two groups were statistically similar. Therefore, it can be concluded that the pre-test and post-test scores of both classes were homogeneous.

Normality and homogeneity tests were conducted to ensure the data met the required assumptions. After confirming the same, the independent samples t-test was performed to compare the means of the two groups. This evaluated whether mind mapping significantly improved student performance in organizing ideas compared with the traditional approach. To test this hypothesis, t-test results were interpreted as follows:

1. If the t-value (t_0) is smaller than the value in the t-table, the null hypothesis (H_0) that there is no significant difference is accepted. On the other hand, if t_0 is greater than the t-table value, then the null hypothesis that there is no significant difference will be rejected, and this proves that there is a significant difference (Ghozali, 2012).
2. If t_0 = the t-value of the t-table, H_0 is rejected; if this happens, at that point, there is a significant difference at the critical point (Dahiru, 2008).

The analysis was conducted using IBM SPSS Statistics version 31 using an Independent sample t-test. The t-test results are presented below:

Table 6. Hypothesis Testing

Independent Samples Test

t-test for Equality of Means

		t	df	Significance One-Sided p	Significance Two-Sided p	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	95% Confidence Interval of the Difference Upper
Result	Equal variances assumed	5.863	46	<,001	<,001	7.625	1.301	5.007	10.243
	Equal variances not assumed	5.863	45.127	<,001	<,001	7.625	1.301	5.006	10.244

The analysis shows that the experimental class has an average score of M = 79.42, compared to the control class, which is 71.79, with the calculated t-value (t = 5.863) greater than the critical t-value = 2.013 with df = 46 and p = .001 less than .05, with the same Std. error difference. Therefore, the null hypothesis stating that mind mapping

does not significantly improve students' ability to organize ideas is rejected. Therefore, the alternative hypothesis is accepted. From these results, statistical evidence indicates that the mind mapping technique has a significant positive effect.

Cohen's d value of 1.69 indicates that the mean increase in the experimental group was significant, and the standard deviation was greater than that of the control group. This is considered a very large effect size, far above conventional benchmarks, which consider 0.2 to indicate a small effect, 0.5 an average effect, and 0.8 a large effect. This value means that the statistical impact triggered by the Mind Mapping technique further surpassed optimal and translated to a relatively high gain in organization skills. This value is a further testimony to the impressive practical effect of intervention, making it the best option for teaching. It is also critical to note that, depending on the study's contextual background, sample size, and variability, one may contextualize the effect sizes to derive a credible and valid conclusion. Further, the high effect also validates the significant findings from the t-test and may increase the validity of the findings. Through its findings, this study concludes that the Mind Mapping intervention is effective in improving the organization of ideas during a descriptive text.

This can be seen from the average score of the experimental class in this study, which amounted to 60.25 before and nearly 79.42 after, which surpasses the control, which was 61.38 against 71.79. This is supported by the results of the independent sample t-test: $t = 5.863 > t\text{-table} = 2.013$ and $p = 0.001 < 0.05$. These results also show that the use of Mind Mapping has a positive and significant effect on the students' descriptive writing in terms of idea organization. This result is consistent with the research conducted by Yoanita et al. (2023), which affirmed the benefits of Mind Mapping on students' coherence and organization in an EFL context.

Mind Mapping enhances students' unity, completeness, and coherence of their writing. In terms of unity, the Mind Mapping method helps students to align their writing more with the main idea, as all the ideas and information written in the mind map relate logically and necessarily to the center, and unavoidably the emergence of divergent ideas. For example, a student in the experimental group could write a description of a family member in terms of an emphasis by continuously emphasizing the physical appearance and personality without writing unrelated ideas. In terms of comprehensiveness, Mind Mapping encouraged students to develop an idea into branches of the tree, which included details about the body, underwear, personality, activities, etc., which provided a more comprehensive and detailed topic. On the other hand, coherence was performed as the Right Column Mind Map model allowed students to write and organize ideas in sequence and logical order, making sentences more natural with smooth transitions.

These findings also support Hyland's (2015) view of writing as a complex cognitive activity encompassing planning, organizing, drafting, and revising. Mind Mapping emerged as a useful pre-writing practice in this study, as it empowered the planning phase of writing. Visually mapping students' ideas allowed them to show how they related to each other, allowing them to write drafts with different structures or sequences. This is also consistent with Emilia & Hamied (2015), who asserted that pre-writing techniques, such as outlining, are effective in helping students develop meaningful writing. Mind Mapping demonstrated advantages over other methods

because it provided freedom and structure, allowing students to generate ideas freely and ensure that they logically developed from one another. Therefore, Mind Mapping enabled students to break down words into coherent sentences and identify plausible relationships between ideas.

Furthermore, these results were also supported by other studies. Although Bukhari (2016) stated that Mind Mapping helps EFL learners in cohesion, coherence, and better content development in writing, Crestiani (2015) emphasized that Mind Mapping helps students in descriptive writing with a clearer structure. More importantly, for this study, Lastari and Hadi (2018) also mentioned that Mind Mapping in the form of classroom action research helps improve junior high school students' scores in descriptive writing. Although these studies prove the effectiveness of Mind Mapping, they also provide other aspects besides the type of descriptive writing, which is questioned in this study because it implies people, which makes this topic a bit more complex. This study implies that the Mind Mapping technique is a very effective instrument in this case because it creates branches specifically for this situation.

This research also contributes to education. Because the study was conducted at Miftahul Falah Junior High School Plus in Bajur, West Lombok, the school is a rural school where students have limited exposure to English. This study suggests that visual-based strategies, such as Mind Mapping, can be used to address the lack of resources and practice. Lack of practice prevents students in rural areas like West Lombok from learning to organize their ideas because they receive limited feedback and are accustomed to traditional teaching methods. On the other hand, Mind Mapping stimulates students' ability to think and generate new ideas. The findings suggest that for many students, summarizing with keywords can reduce anxiety and increase self-confidence. These findings could be useful for the implementation of the Independent Curriculum (Kurikulum Merdeka), which adheres to the philosophy of a project-based learning approach and focuses on thinking competencies, but encourages student-centered teaching. In a student-centered learning environment, students can develop knowledge through activities such as Mind Mapping.

This study also has theoretical implications; it emphasizes the importance of visual learning aids for writing and demonstrates how these aids can be modified to assist in writing various types of texts. While there are many pre-writing strategies, such as Mind Mapping, this approach is ideal because it strikes a good balance between structure and creativity, which is useful for descriptive writing. This research thus informs the broader field of English language education with empirical evidence that Mind Mapping is effective in general writing instruction and responds to specific problems related to the organization of ideas in descriptive texts about people. There are, however, several limitations that have to do with this study. First, the sample size was limited, and only 48 students from one school were involved in the study. The treatment was conducted for only three sessions, which may not fully disclose the long-term benefits of using Mind Mapping. Furthermore, only descriptive texts were focused on, meaning that the efficiency of Mind Mapping for other genres, such as narrative, recount, or expository writing, is yet to be explored.

Overall, the discussion of the results shows that Mind Mapping is statistically effective in enhancing students' descriptive writing and pedagogically valuable in fostering unity, completeness, and coherence. It is congruent with established theories

of writing, supported by previous research, and contextually relevant to rural schools implementing the Merdeka Curriculum. Mind Mapping is a strong, pragmatic tool for enhancing students' ability to organize ideas in English writing.

CONCLUSION AND SUGGESTION

Conclusion

The findings justify that the Mind Mapping technique significantly enhances the students' ability to organize ideas in writing descriptive texts, as it is observed that the experimental group improved by an average score of 19.17 points, from 60.25 in the pre-test to 79.42 in the post-test, while the control group increased by 10.41 points, proving that the application of mind mapping has a bigger effect. In addition, the improvement can be proven statistically. It can be seen from the independent sample t-test, showing a p-value = 0.001 lower than the significance level (α = .05), and the value of t (5.863) was also higher than the t-table (2.013). Thus, H0 was rejected, and H_a was accepted to prove that the Mind Mapping technique enhances the students' ability to organize ideas in descriptive writing effectively.

Suggestion

Based on the findings and conclusions of this study, the following suggestions are provided for English teachers, students, and future researchers:

1. For English Teachers: It is recommended that English teachers employ the Mind Mapping technique in teaching descriptive writing. This technique will help students to clearly visualize and organize their ideas before the process of writing begins. This method especially helps those who cannot sequence logically or expand ideas. Enough practice and guidance must be provided by the teacher to enable the students to get full benefit from the technique of Mind Mapping.
2. For Students: It is recommended that students practice using Mind Mapping as one of the pre-writing strategies that help them to organize their thoughts and investigate various angles for approaching a subject of description. Students will, therefore, be able to improve the structure and coherence of their writing, making it more elaborate and understandable in descriptive texts.
3. For Future Researchers: The researcher suggested applying the Mind Mapping technique to other types of writing or across different educational levels to broaden the understanding of its effectiveness. Future researchers are also encouraged to explore integrating digital mind mapping tools to address some limitations identified in this study, such as the time-consuming and manual nature of creating mind maps.

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