

# THE USE OF MIND MAPPING TECHNIQUE IN TEACHING WRITING TO EIGHTH GRADE STUDENTS USING GOOGLE MEET PLATFORM VIEWED FROM THEIR CREATIVITY

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## ABSTRACT

*Writing accelerates students' use of the target language, making it an essential part of classroom preparation. Writing skills can be improved through the use of mind mapping. The following are the research's goals: (1) to determine whether teaching writing to eighth-graders using mind mapping technique is more effective than using peer review, (2) to determine whether eighth-graders with higher levels of creativity have better writing skills than those with lower levels of creativity, and (3) to determine whether teaching methods and students' creativity interact when teaching writing to eighth-graders. This is an experimental study with a 2x2 factorial design. This study was participated by 48 students as the subject of the study. Data of this study were collected through writing and creativity tests. ANOVA and the Tukey test were used to analyze the data. The findings of the study revealed that the mind mapping technique is more effective than the peer review technique for teaching eighth-grade writing. The students with high creativity have better writing skills than students with low creativity. There is an interaction between teaching techniques and students' creativity in teaching writing in the eighth grade.*

**Keywords:** *mind mapping; peer review; creativity; teaching writing*

## INTRODUCTION

There are four abilities involved in learning English: reading, listening, writing, and speaking. The aim of teaching English itself is stated in both curriculums of 2006 and 2013 stating the students are expected to be able to build communication using English. According to Raimes (in Beckett et al., 2004), learning a second language entails learning how to interact with others through understanding them, speaking with them, and reading what they write. In this case, it means that students have to be able to convey their ideas by producing both spoken and written expressions and comprehending the idea delivered by the speaker or the writer. Students improve their communication skills by using four language skills: listening, speaking, reading, and writing. Among these skills, one of the four skills that must be taught in the 2013 Curriculum in Indonesian Junior High Schools is writing.

The point of educating composing is to empower a student to overcome utilitarian writings and monologue writings within the frame of graphic, method, coherence, story, and report. Writing is very important in preparation for teaching and learning because it accelerates students in using the target language. It is evaluated

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that 75 % of all universal communication is in composing and 90 % of web substances are in English (Schütz, 2018). It implies students utilize English as a medium for exchanging data and innovation.

Composing in a composition can be utilized in post-perusing as well. Writing more ended up as critical expertise that took a portion of students' competence in communication. Ur (1996) states that much higher measures of dialect are regularly requested in composing than in discourse. In addition, composing or writing is one of the two abilities tested on the national final exam. Hence, it is assumed that composing expertise is one of the foremost vital aptitudes within educating (in teaching) English in Indonesia.

On the other hand, concurring with Simpson (1998), the trouble is due to the truth that an author must have sufficient language and common mental aptitudes to produce and organize thoughts and puts those thoughts into coherent, consistently requested, comprehensibly sentences, sections and papers. It is upheld by Richard and Renandya (2002) who state composing is not as it were to produce and organize thoughts utilizing a suitable choice of lexicon, sentence, and passage organization but also to turn such thoughts into clear content. Other than that, students have challenges in exchanging thoughts from their local language with the target language.

Dealing with the problems faced by the students, the researchers considered using mind mapping in the teaching of writing skills. Mind mapping is a teaching technique that uses brain management to uncover all of the brain's hidden potential and power. In addition, mind mapping technique is frequently utilized to assist students in learning in an effective, productive, and enjoyable manner. Buzan (2010: 8) states that the brain has a natural ability to perceive visually. Mind mapping uses this ability to get as many as possible results. The colour, pictures, and branches give a contribution to simulating the brain. They stimulate the brain faster than the traditional way of note-taking which tends to be linear and in one colour.

Meanwhile, the peer review technique is an essential part of the writing process used between the drafting and revision stages: draft, planning, editing, and the final product. Students can do the four components of the writing process through the peer review technique. Students can revise their writing work with the assistance of the peer review technique by understanding its strengths and weaknesses or what is lacking in it. Students could use this technique to check the organization, content, vocabulary, language use, and mechanics of their writing by exchanging it with their partners. According to Bartels (2003: 21), students engage in peer review by reading and providing feedback on each other's papers. Along with reviewing the writing of others, peer review also entails editing, assessing, and giving feedback to one another's writing.

Additionally, if students' creativity is bolstered, both mind mapping and peer review technique will be effective in writing instruction. "Creativity involves thinking that is aimed at producing ideas or products that are relatively novel and that are, in some respect, compelling" (Sternberg, 2006). Writing well is a part of thinking well. In the meantime, thinking is part of creativity. As a result, good writing relies heavily on creativity. The type of creativity that has the biggest impact on writing well is verbal creativity. It is the ability to think logically and critically when assessing one's verbal fluency, adaptability, and originality in connection to words and sentences. Also, verbal creativity is the capacity to generate fresh concepts and then put them together with knowledge that students currently possess. Divergent thought expressed verbally reveals the new ideas' fluency, adaptability, and originality.

In this study, the researchers conducted an experimental study entitled "The Use of Mind Mapping Techniques in Teaching Writing to Eight Grade Students Using Google Meet Platform Viewed from their Creativity in the Academic Year of 2020/2021".

English is a language of communication that has become increasingly important in recent times. Because of this, English is taught in all Indonesian schools. One of them is SMP. Students at the school are encouraged to acquire multiple languages. At this school, English instruction aims to teach students how to learn and use the

language in everyday life. According to the School-Based Curriculum of 2013, the goal of junior high English classes is to help students understand and produce speech or written texts using four skills. They combine speaking, writing, reading, and listening to get to the informational level. Because it enables students to express their ideas in writing, writing is one of the most crucial abilities they should learn.

## RESEARCH METHODS

This is an experimental study aimed at discovering the effect of teaching techniques and students' creativity on students' writing ability. According to Fraenkel et al. (2012), experimental research is the most conclusive and scientific approach because it really establishes many treatments before examining their effects. Furthermore, the researcher applied factorial design 2x2. Ary et al. (2019) point out that a factorial design is a method that allows the researcher to evaluate the influence of two or more independent variables on the dependent variable at the same time. There are two factors with two levels that are involved in this research. Those two factors are Mind Mapping Technique and Peer Review Technique, while the two levels are high creativity and low creativity. The design is as follows:

**Table 1. Research Design: Factorial Design 2X2**

Factor A		Teaching Techniques	
		Mind Mapping Technique Experimental Group (Group A <sub>1</sub> )	Peer Review Technique Control Group (Group A <sub>2</sub> )
Students' Creativity	High (B <sub>1</sub> )	Group A <sub>1</sub> B <sub>1</sub> (the students having high creativity taught using Mind Mapping Technique)	Group A <sub>2</sub> B <sub>1</sub> (the students having high creativity taught using Peer Review Technique)
	Low (B <sub>2</sub> )	Group A <sub>1</sub> B <sub>2</sub> (the students having low creativity taught using Mind Mapping Technique)	Group A <sub>2</sub> B <sub>2</sub> (the students having low creativity taught using Peer Review Technique)

The picture shows that (1) by comparing the observation under treatment variable, Mind Mapping Technique (A<sub>1</sub>) to observation under Peer review Technique (A<sub>2</sub>), it is possible to contrast the effectiveness of those teaching techniques to teach writing to junior high school students viewed from their creativity; (2) by comparing the observation under creativity variable, High creativity (B<sub>1</sub>) to observation under Low creativity (B<sub>2</sub>), it is possible to find out which students have better writing skills viewed from their creativity, (3) by comparing the individual cell effects, group A<sub>1</sub>B<sub>1</sub> versus A<sub>2</sub>B<sub>1</sub>, group A<sub>1</sub>B<sub>2</sub> versus A<sub>2</sub>B<sub>2</sub>, it is possible to identify the interaction of types of teaching techniques and students' creativity that might exist, and (4a) by comparing A<sub>1</sub>B<sub>1</sub> to group A<sub>2</sub>B<sub>1</sub>, it can be pointed which teaching technique is better applied to teach writing to junior high school students having high creativity; (4b) by comparing group A<sub>1</sub>B<sub>2</sub> to group A<sub>2</sub>B<sub>2</sub>, it can be pointed which teaching technique is better applied to teach writing to junior high school students having low creativity.

The participants in this study are eighth-grade students of SMP Widya Wacana 1 Surakarta during the 2020/2021 academic year. Two classes were chosen at random to serve as an experimental class and a control class. These two classes serve as the subject of the study. The experimental class was VIII A (24 students) and the control class was VIII B class (24 students).

The score obtained from Munandar's (2009) adapted and modified verbal creativity test is the metric used to determine students' verbal creativity. The researchers looked at the test results after giving the students the creativity test. It is a nominal scale with two categories: low and high.

Descriptive and inferential statistics are employed to evaluate the data because the researchers wished to provide an interpretation of the data and make a conclusion. While descriptive analysis is intended to explain a

pattern in the data for a single variable or instrument question, inferential statistics are used to compare two or more groups on the independent variables in terms of the dependent variable (Creswell, 2012).

Before testing the hypothesis, it is necessary to determine the data's normality and homogeneity. The use of multifactor analysis of variance (2x2) is the final option. If  $F_o > F_t$ ,  $H_o$  is rejected, and the analysis continues to determine which groups differ. The Tukey HSD test was utilized by the author following an ANOVA analysis of the data. HSD is Honestly Significant Different. A statistical test called the Tukey test is typically used in conjunction with an ANOVA. To determine whether group means differ, the Tukey test is utilized.

## RESULTS AND DISCUSSION

### Results

#### Normality Test

The data's normality is determined through the use of Liliefors testing. The normality test is used to determine whether or not the data follow a normal distribution. The sample follows a normal distribution if, at Liliefors' level of significance ( $\alpha = 0.05$ ),  $L_o$  (L obtained) is less than  $L_t$  (L table).

**Table 2. The Result of Normality Test**

No	Group	$L_o$	Number of Group	$L_{t(0.05)}$	Test Result	Conclusion
1	A <sub>1</sub>	0.124	24	0.177	$L_o < L_t$	Normal
2	A <sub>2</sub>	0.114	24	0.177	$L_o < L_t$	Normal
3	B <sub>1</sub>	0.102	24	0.177	$L_o < L_t$	Normal
4	B <sub>2</sub>	0.156	24	0.177	$L_o < L_t$	Normal
5	A <sub>1</sub> B <sub>1</sub>	0.133	12	0.243	$L_o < L_t$	Normal
6	A <sub>2</sub> B <sub>1</sub>	0.184	12	0.243	$L_o < L_t$	Normal
7	A <sub>1</sub> B <sub>2</sub>	0.131	12	0.243	$L_o < L_t$	Normal
8	A <sub>2</sub> B <sub>2</sub>	0.164	12	0.243	$L_o < L_t$	Normal

Using the Liliefors formula, normality testing revealed that all  $L_o$  values were lower than  $L_t$ . As a result, it is possible to conclude that all of the data follow a normal distribution.

#### Homogeneity Test

The homogeneity testing utilized in this review is by executing the Bartlett equation. The purpose of the test is to determine whether or not the data are uniform. The fact that the data are uniform indicates that the population is well-formed makes this test significant. Table 3 presents the summary of the homogeneity testing result.

**Table 3. The Summary of Homogeneity Testing**

Sample	df	1/(df)	$S_i^2$	$\log S_i^2$	df $\log (S_i^2)$
1	11	0.09	16.61	1.22	13.42
2	11	0.09	13.30	1.12	12.36
3	11	0.09	23.84	1.38	15.15
4	11	0.09	28.20	1.45	15.95
$\Sigma$	44	0.36	81.95	5.17	56.89
$\chi_o^2$	1.88		$\chi_t^2$	7.81	
Conclusion		Homogeneous			

According to the test results, the value of chi-square observation  $\chi_o^2$  is 1.88, which is lower than the table value of chi-square for  $df = 3$  at a level of significance = 0.05,  $\chi_t^2$  is 7.81. It is possible to conclude that the data is homogeneous.

### Summary of 2x2 Multifactor Analysis of Variance (ANOVA)

To ascertain whether the null hypothesis ( $H_0$ ) is accepted or rejected, researchers use hypothesis testing. Multifaceted Examination of Change (ANOVA) is utilized to test the speculations.

**Table 4. The Data Analysis Summary of ANOVA**

Source of Variance	SS	df	MS	$F_0$	$F_{t(0.05)}$
Between columns (technique)	368.52	1	368.52	17.9883	4.06
Between rows (creativity)	3283.52	1	3283.52	160.275	4.06
Columns by rows (interaction)	111.02	1	111.02	5.41916	4.06
Between groups	3763.06	3	1254.35		
Within groups	901.42	44	20.48674		
Total	4664.479	47			

From the summary of the 2x2 Multifactor Analysis of Variance (ANOVA) above, it can be concluded that the null hypothesis of the method of teaching writing is that there is no difference in the effectiveness between the Mind mapping Technique and the Peer review Technique. Because  $F_0$  between columns (17.9883) is higher than  $F_{t(0.05)}$  (4.06), the null hypothesis is rejected. It can be concluded that there is a significant difference between the mind mapping technique and the peer review technique to teach writing. The mean of the students taught using mind mapping (82.54) is significantly higher than the mean of those taught using peer review technique (77), therefore it can be concluded that the mind mapping technique is more effective than the peer review technique.

The null hypothesis is that there is no difference in writing achievement between students having high and low creativity. Because the data analysis shows that  $F_0$  between rows (160.275) is higher than  $F_{t(0.05)}$  (4.06), the null hypothesis is rejected. It can be concluded that there is a significant difference in writing achievement between students having high creativity and those who have low creativity. The mean for students with creativity is higher (88.04) than for students with low creativity (71.5). As a result, students with a high level of creativity performed better in writing than students with a low level of creativity.

The null hypothesis is that there is no interaction between writing technique and creativity in teaching writing. From the data analysis, it can be found that the null hypothesis is rejected because  $F_0$  between rows (5.41916) is higher than  $F_{t(0.05)}$  (4.06). It can be concluded that there is an interaction between the two variables, teaching techniques and creativity. It means that the effect of teaching techniques on performance in writing depends on the degree of creativity.

### The Summary of Tukey Test

The researchers used Tukey testing to look at the various group means after assessing the variance. Researchers can calculate  $q$  by multiplying the difference in means by the square root of the ratio of variation within groups to sample size. The summary of assessing the significant level of mean difference using the Tukey Test is shown in Table 5.

**Table 5. Summary of Tukey Test**

Between Columns	n	$q_0$	$q_{t(0.5)}$	Meaning	Category
$A_1 - A_2$	24	6.00	2.92	$q_0 > q_t$	Significant
$B_1 - B_2$	24	17.90	2.92	$q_0 > q_t$	Significant
$A_1B_1 - A_2B_1$	12	9.29	3.08	$q_0 > q_t$	Significant
$A_1B_2 - A_2B_2$	12	2.71	3.08	$q_0 < q_t$	Not Significant

The interpretations that can be drawn from the aforementioned summary of the Tukey Test are as follows: Because  $q_0 (A_1 - A_2)$  6.00 is higher than  $q_t$  at the level of significance  $\alpha = 0.05$  (2.92), when teaching writing, the mind mapping technique differs significantly from the peer review technique. The average score of students who receive instruction through the mind mapping technique (82.54) is higher than the average score of students who receive instruction through the peer review technique (77). As a result, it can be concluded that teaching writing through mind mapping is more effective than through peer review.

Because  $q_0 (B_1 - B_2)$  17.9039 is higher than  $q_t$  at the level of significance  $\alpha = 0.05$  (2.92), writing skills of students with high creativity differ significantly from those of students with low creativity. Students with high creativity (88.04) have a mean score that is higher than that of students with low creativity (71.5), it can be concluded that students with a high level of creativity write more effectively than students with a low level of creativity.

Because  $q_0 (A_1B_1 - A_2B_1)$  9.29 is higher than  $q_t$  at the level of significance  $\alpha = 0.05$  (3.08), the Mind Mapping Technique is significantly different from Peer Review Technique for students having high creativity. The mean score of students having high creativity who are taught by the Mind Mapping Technique (92.33) is higher than the mean score of students having high creativity who are taught by the Peer Review Technique (83.75). Therefore, it can be concluded that the Mind Mapping Technique is more effective than Peer Review Technique.

Because  $q_0 (A_1B_2 - A_2B_2)$  2.71 is lower than  $q_t$  at the level of significance  $\alpha = 0.05$  (3.08), so Mind Mapping Technique is not significantly different from Peer Review Technique for students having low creativity.

## Discussion

### *The effectiveness of mind mapping technique versus peer review technique for teaching writing*

For the eighth-grade students of SMP Widya Wacana 1 Surakarta in the academic year of 2020–2021, teaching writing by utilizing the mind mapping technique is more effective than the peer review technique. The thought mapping technique works well for instructing writing. It makes learning activities more enjoyable, engaging, successful, and meaningful. Kotob, Styger, & Richardson (2016) claim that mind mapping is a technique for producing creative and efficient thinking. The technique aids in clustering research topics around a primary keyword or idea for visual presentation.

Mind mapping is a valuable technique which encourages and improves creative problem-solving, enhances the way someone records knowledge, and aids in learning more efficiently (Sugiharti, 2020). Mind mapping is a useful tool for creating an effective essay structure. Mind mapping enables readers to visualize every argument picture and evaluate objectively the rationality of an essay's argument and structure. Mind mapping is a useful tool for complete writing as well as for planning what someone wants to write (Buzan, 2010).

Buzan (2010) argues that when building a mind map, the central image must initially communicate the main idea. To activate the right side of the pupils' brains, boost their memory, and make learning enjoyable, it ought to be in the centre of the paper. Mind mapping will make it easier for students to come up with ideas because it stimulates the right brain. Their writing would therefore be full of concepts.

According to Dewi (2017), the student's behavior improved as a result of the mind-mapping strategy's implementation. Throughout the discussion, the students improved their communication skills. They additionally worked on their certainty to introduce the consequences of the conversation before others. This improvement occurred as a result of the teacher's involvement in the learning process, which increased students' creative and active participation. The teacher makes the students the focus of the lesson by getting them involved.

Asrul et al. (2021) draw the conclusion that mind mapping is a practical method that may be applied to writing tasks. The classroom environment is also made more enjoyable by the application of the mind mapping technique. According to Pribadi & Susilana (2021), the application of the mind mapping learning approach engages students and increases their desire for writing assignments. It provides students with a visual representation of their knowledge and opinions, allowing them to influence the implementation of theoretical reviews using a constructivist approach.

According to Waloyo (2017), using mind mapping, students were able to arrange and organize their thoughts for writing assignments within exam conditions. This indicates that mind mapping provided keywords that writers could use in their planning and could capture their ideas about what they needed to write. One may argue that mind mapping is a technique for assisting students in strengthening their concepts. Prior to writing, students might utilize mind mapping to free-form organize their thoughts into main topics. After they have gotten their ideas down, the students can organize them into the opening paragraph and the final piece of writing. This shows that students can simply stick to what they have put down when using mind mapping as a comprehensive plan for the paragraphs.

However, unlike mind mapping, the peer review method does not allow for navigation. By the interaction of the peer review technique, students exchange knowledge. Also, during the writing process, the students have roles and duties in providing written and oral feedback on and criticism of one another's writing (Hansen & Liu, 2005). According to Ruru & Sulistyono (2020) in peer review technique, students appear to view their peers as having the same status as them and are less adept at providing feedback than teachers. The majority of students believed that, in comparison to their teachers, their peers rarely point out or correct all errors in written feedback.

According to Hyland (2015), the peer review technique frequently takes up too much time during the teaching and learning process, teachers are unable to concurrently supervise each group, and students are skeptics of the review's worth because the readers lack relevant experience. Peer review promotes students to consider professors and peers as partners rather than judges and is less authoritarian than teacher review. Students will require direction from their teacher in order to know what to look for when reading the work of their classmates (Harmer, 2004). Thus, the mind mapping technique is more effective than the peer review technique in teaching writing.

### ***Students having high creativity versus those having low creativity***

Writing is an active method for communicating an idea. It is a component of thought. Students need to think clearly in order to produce quality writing. Some individuals link creativity and thinking. It implies that pupils need to think creatively in order to produce quality writing. Creative students will have the adaptability, fluidity, and originality of thought necessary for writing.

Creativity is one of the human skills that combines broad stimuli with memory to form something new (Kulsum, 2018). Nurfaizah, Suarlin, Amrah, & Nurhaedah (2020) state creative thinking is a cognitive habit that is developed through paying attention to intuition, developing imagination, expressing new possibilities, opening up amazing vistas, and producing unexpected thoughts. Ideas will emerge, relationships between them will be discovered, imagination will be developed and carried out, and there will be a variety of perspectives on a topic as creativity develops. Students who can think creatively well are more likely to be interested in learning and to feel challenged.

Students who lack creativity, on the other hand, tend to be passive. They only do any task based on what is told to them, and they don't like being told to think outside the box. They will also be hesitant to participate in activities that need them to think creatively. They enjoy being guided and enjoy something straightforward.

Processes and difficulties are typically seen as obstacles by students with low creativity. They will have more responsibilities the more activities they have to participate in. They do not like doing activities since they prefer guided, simple, and straightforward ones, which calls for strong teacher supervision. The explanation claims that children with higher levels of creativity perform better in writing than students with lower levels of creativity.

### ***An interaction between teaching techniques and students' creativity in the teaching of writing***

Mind mapping fosters critical thinking skills by challenging students to confront new concepts and providing students with quick feedback on their intellectual reaction to particular material. Mind mapping is a method for developing a visual learning style. It develops and integrates a person's potential brain function. A person will be able to organize and remember all kinds of written and verbal information if both hemispheres of the brain are involved. The creative, efficient, and literally mapping of the mind is also a route map that makes it easier to remember things and makes it possible to build facts and ideas, involving the human brain's natural functions from the start. As a result, information will be easier to remember and more reliable than traditional peer review methods. According to the analysis, the use of the mind mapping technique enhances and enhances students' creative thinking abilities during the learning process (Miranti & Wilujeng, 2017).

Naturally, students must be more inventive in order to accomplish this. In a nutshell, students with a high level of creativity will have no trouble mastering the mind mapping technique. When the mind mapping method is used in a classroom activity, it is likely that students with high levels of creativity will be able to maximize their potential.

Mind mapping is an excellent tool for developing and refining previously learned concepts or subject matter. In other terms, a mind map is a visual organization that can systematically represent knowledge. The instructor or researcher can also use it to classify the information. Of course, it enables students to learn through independent practice. It is clear that when students are learning in their preferred manner, mind mapping fosters the development of creativity (Jogan, 2020).

Mind mapping enables students to explore and arrange their ideas in a structured manner. Mind mapping will also foster creativity because kids employ symbols, visuals, and colors in addition to words. Mind mapping can therefore be utilized to successfully teach writing recount text (Dewi, 2017).

The teacher can use mind-mapping as an alternative teaching method because its implementation has positive outcomes. Students will be able to think more critically and creatively by using mind maps. The students will be more engaged in their education and interested in the subject matter as a result. The environment in the classroom will be improved by the students' curiosity and interest. As a result, instructing students to participate in the learning activities will not be difficult for the facilitator.

According to Tukey test results, the Mind Mapping Technique is not significantly different from Peer Review Technique for students having low creativity. So the effectiveness of both the Mind Mapping Technique and Peer Review Technique is similar for teaching writing to students who have low creativity because whatever learning technique is used it does not have any effect on the students who have low creativity. Students having low creativity tend to be passive in doing the task. According to Fasko (2001), when a learning strategy is taught to students with low creativity, it fails to work. As a result, students with low levels of creativity score almost identically in writing when taught through mind mapping or peer review.

## **CONCLUSION AND SUGGESTIONS**

The mind mapping technique is more effective than the peer review technique to teach writing in the eighth grade. Students who have high creativity have better writing skills than those who have low creativity.



There is an interaction between teaching techniques and students' creativity in teaching writing in the eighth grade. Based on those findings, it can be concluded that the Mind Mapping Technique is effective to teach writing to the eighth grade students. The effectiveness of this technique is affected by students' creativity.

There are some recommendations for educators, students, and potential researchers based on the preceding conclusions. For the benefit of teachers, teaching and learning environments, particularly those pertaining to writing instruction, must become dynamic and engaging as opposed to tense and monotonous. As a result, they should use the Mind Mapping technique to make learning enjoyable for students. Learning is more effective when students enjoy learning. The mind mapping technique will help students become more independent; therefore, it can be utilized in both large and small classes. It's easy, fun, and makes students think creatively. Because of this, it is suggested that English instructors implement it in their class.

Mind mapping is an easy technique that students can use for writing activities. It is useful for generating and organizing ideas, opinions, and thoughts in other writing activities as well as in the classroom teaching and learning process. As a result, the researchers recommend that every student learn how to use it. Besides that, to be creative students, they must have the ability to obtain a new perspective and bring something new. This ability is not obtained automatically. They must have a lot of practice. Students can do some activities to sharpen their creativity. Students can start to ask questions, then try to investigate and find all the information about the question from the internet, friends, and others. After that, students can start to implement all the information from the investigation and if it is possible students can try to make an experiment from that information.

The results of this study may encourage other researchers to carry out additional research on the instructional techniques followed and the function of creativity in enhancing students' writing abilities. With some modification, this research design can be replicated using mind mapping as a teaching technique for writing instruction. The study of various student conditions, such as their routines, motivations, or interests, is also helpful.

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