# Improvement to Students' Achievement in Procedural Text Composition through Process Approach-Based Mind Mapping Employment

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*ABSTRACT: The purpose of this study was to investigate whether there is a significant improvement in students' writing achievement after being taught using Process Approach-Based Mind Mapping, as well as which aspect of students' writing enhances the most. A quantitative study using a pre-experimental design was carried out which involved 15 ninth-grade students of SMPN 38 Bandar Lampung. The instruments used in this research were writing tests whichwere analyzed using Paired Sample T-test through SPSS 16.0. The results demonstrated that students' writing achievement significantly improved from pretest to posttest after being taught using Process Approach-Based Mind Mapping and the most enhancement aspect of writing was content. Process Approach-Based Mind Mapping could be utilized to assist students organize their thoughts by allowing for individual brainstorming using graphics and providing students with a structured writing direction. Process Approach emphasizes four key stages: planning, drafting, editing (reflecting and revising), and final version.*

*Keywords: mind mapping, process approach, writing*

## I. INTRODUCTION

Writing, in particular, plays an essential role of communication in this modern era; by doing so, a good writing skill helps the students able to communicate and express their feelings and ideas into written form. In accordance with Tiwari (2005), writing can be described as the process of converting ideas into written language.Moreover, Wyrick (2011) says that writing is a productive skill and a creative act in expressing ideas. Writing can also help students develop their thoughts and feelings. Students should remember several aspects of writing in order to write properly. Celce-Murcia and Olshtain (2000) states that there are five aspects of writing that should be considered, namely content, organization, vocabulary, language use, and mechanics.

Fareed, Ashraf, and Bilal (2016) argued poor writing skills are caused by two factors: the teacher and the students. Teachers' inability to teach writing in a manner that allows them to provide timely and effective feedback to students. In addition, the students are unfamiliar with the writing process. Moreover, students are frequently puzzled about what to write and where to begin in order to generate an appropriate length, structure, and paragraph organization (Bukhari, 2016). Harmer (2007) also noted mentions that students lack confidence in their writing since they have nothing to write about. It corresponds to the difficulties encountered by ninth-grade students of SMP Negeri 38 Bandar Lampung.

The difficulties of writing arise not just from the development and organization of ideas, but also from the conversion of those ideas into legible writing. It should be highlighted that the students' issues were not only in pre-writing, but also in writing processes such as planning, drafting, revising, and final version.

To assist the students overcome their difficulties, the researcher employed Mind Mapping. Yunus and Chien (2016) stated that using Mind Mapping can help students map knowledge in a way that will help them be better to understand and retain information. Mind Mapping can be utilized to assist students to organize their thoughts by allowing individual brainstorming practice with graphics (Flora, 2019). Several studies have been widely employed Mind Mapping to teach English writing. The first study was conducted by Khusniyah (2019) who found that using mind mapping technique is very useful and makes the teacher easier to apply the lesson because students trained how to reflects what they think in a piece of paper and it cannot make a limitation from their ideas. Another study was Al-Zyoud, Al Jamal, &Baniabdelrahman (2017) who revealed that using the mind mapping strategy provides opportunities for students to come up with original and useful ideas. The last was conducted by Bukhari (2016) who noted that if Mind Mapping applied in the pre-writing process of teaching writing, it will be effective in producing significant outcomes.

However, it was still constrained in its application, which was typically used mainly during the pre-writing phase which was typically used mainly during the pre-writing phase. In this recent study, Mind Mapping is integrated with Process Approach where the students are guided in each process of writing. Williams (2003) proposed that the writing process has some stages: planning, drafting, revising, publishing. The writing process approach is viewed as a motivated, individual, and reflective activity in which teachers counsel students, provide constructive feedback, and provide the favorable environment for writing (Boscolo, 2009).Palpanadan et al. (2014) noted that the process approach is essentially a cyclical approach. In this approach, students must write back and forth while progressing from one stage to the next and participating in writing activities.

Recalling Williams (2003), Boscolo (2009), Palpanadan et al. (2014) ideas, by integrating Mind Mapping with Process Approach, it is expected to assist the application of this technique appropriately in all writing processes. The Process Approach in Mind Mapping serves as a structured direction for students to write. In line with Process Approach, it emphasizes four main elements: planning, drafting, editing (reflecting and revising), and final version. The procedures of Process Approach-Based Mind Mapping can be illustrated as follows:
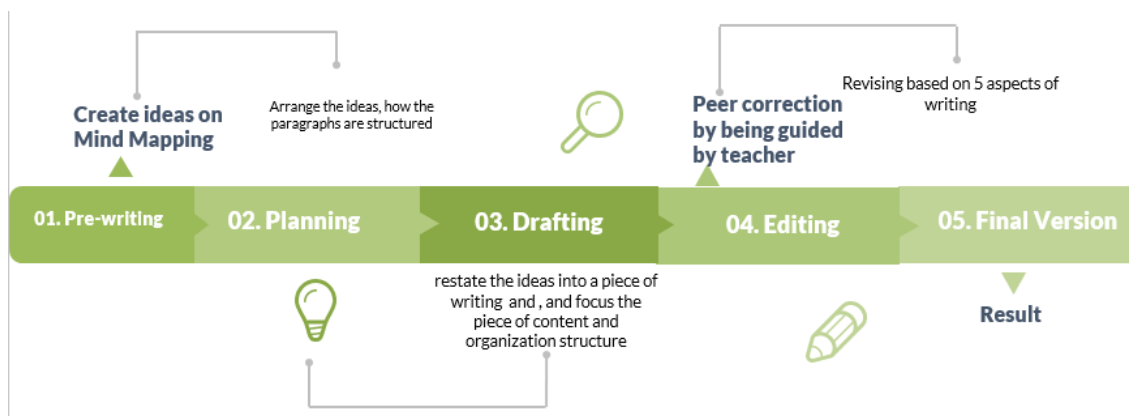
The treatment was also divided into five processes which were pre-writing, planning, drafting, editing, and final version. First, in pre-writing process, the students were explained about Mind Mapping with procedure text and showed the example of it. Then, they were asked to create ideas on Mind Mapping. Then, in planning process, the students.

were also given the new topic about procedural text. Then, they started creating their own ideas by writing them on mind mapping by using diagram or branches. Second, in drafting, it was also the same as the second meeting. The students were asked to determine which ideas they covered, then group the ideas based on the generic structure of procedure text. The students were also explained the organization of procedure text. After that, they were asked to produce the procedure text by following the guidance of Mind Mapping they had made. This activity became their draft. Fourth, in editing, the students correct their friends' work in the form of oral or written comment using guidelines from the teacher. Then, the teacher monitors peer correction process and guides them to compose procedural text based on five aspects of writing. Last, the students submitted the final draft. Then, the teacher evaluated the students' writing and the whole learning process.

Based on the explanation stated above, the researcher formulates the problem as follows:

1. Is there any significant improvement of students' writing achievement after being taught by using Process Approach-Based Mind Mapping?

2. Which aspect of students' writing enhances the most after they have been taught by using Process Approach-Based Mind Mapping?

## II. Method
### Research Design

The researcher conducted a quantitative research in the form of a pre-experimental design to answer the formulated research questions (see Amalia Solikhah & Herlisya,

2021; Destika, 2022; Herlisya & Wiratno, 2022; Nurchurifiani et al., 2021). The design of this research was as follows:

**Table 1.** Research design

| Pre-test | Treatments | Post-test |
|----------|-----------|-----------|
| T1       | X         | T2        |

This study began by gathering data on the students' writing achievements before the treatments. It was gathered by administering a pre-test during the first meeting. The next meeting was for the treatments' implementation – Process Approach-Based Mind Mapping. It was used for three meetings. At the last meeting, there was a post-test to collect data on the students' writing after treatments.

**Population and Sample**

The population of this research was the third-grade students of SMPN 38 Bandar Lampung. There were four classes of the third-grade in that school. For the sample of this research, the researcher took one class, it was class IX C consisted of 15 students. The ninth grade was chosen based on the curriculum. At this level, the students must have studied simple tenses and adequate vocabularies. Therefore, Process Approach-Based Mind Mapping could be implemented.

**Instruments**

The instruments used for this research were pre-test and post-test. The students were asked to write procedural text.

**Data Analysis**

To answer the first research question, the researcher organized the data of mean pre-test and post-test results from the experimental class and then calculated them using Paired Sample T-test to find out whether there was a significant improvement in students' writing achievement after being taught using Process Approach-Based Mind Mapping. For the second research question, the researcher calculated all scores of students' writing aspects in the pre-test and post-test then found the Mean of the enhancement of each aspect of students' writing.

**III. Result and Discussion**

**Is there any significant improvement of students' writing achievement after being taught by using Process Approach-Based Mind Mapping?**

After administering writing pre-test and post-test to students, the data was compared to see if there was a significant improvement in their writing.

**Figure 1** The mean difference of students' pretest and posttest achievement
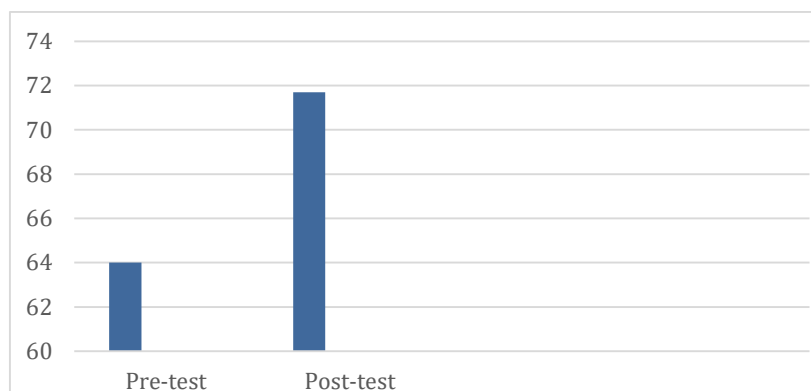
The figure above shows that the mean of the pre-test was 64 and the post-test was 71.7. The difference between means was 7.7. It indicates that the students' writing improved after Process Approach-Based Mind Mapping employment. The data was further evaluated to determine the t value and sig (2-tailed) observed by the paired sample T-test in order to more properly prove the result:

| | | **Paired Differences** | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | Post Test - Pre Test | 9.800 | 7.632 | 1.970 | 5.574 | 14.026 | 4.973 | 14 | .000 |

**Paired Samples Test**

The table shows that the results of the computation of the value of two tailed significance is 0.000.  It means that H1 is accepted because 0.00<0.05. It proves that there is significant improvement of students' writing achievement from pretest and posttest after being taught by using Process Approach-Based Mind Mapping. Then, if the t-value (4.973) compared with t-table (2.144), it can be seen that the students' writing improves since t-value > t-table. It can be concluded that there is significant improvement of students' writing achievement after being taught by using Process Approach-Based Mind Mapping for the third-grade students of SMPN 38 Bandar Lampung.

**Which aspect of students' writing enhances the most after they have been taught by using Process Approach-Based Mind Mapping?**

It can be seen that Process Approach-Based Mind Mapping can improve the students' procedural writing in each aspect of writing. The enhancement of each aspect is presented in the following table:

**Table 2.** The Enhancement of Aspects of Writing

| ASPECTS OF WRITING | PERCENTAGE | MEAN SCORE OF PRETEST | MEAN SCORE OF POSTTEST | GAIN | THE ENHANCEMENT |
|---|---|---|---|---|---|
| CONTENT | 30% | 17.4 | 19.86 | 2.46 | 32.16% |
| ORGANIZATION | 20% | 14.6 | 16.63 | 2.03 | 26.54% |
| VOCABULARY | 20% | 14.1 | 15.9 | 1.8 | 23.53% |
| LANGUAGE USE | 25% | 15.5 | 16.3 | 0.83 | 10.85% |
| MECHANIC | 5% | 2.4 | 2.9 | 0.53 | 6.93% |
| TOTAL | 100% | 64 | 71.7 | 7.65 | 100% |

| Descriptives | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Aspects | | | | | | | | |
| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
| | | | | | Lower Bound | Upper Bound | | |
| Content | 15 | 2.467 | 1.9408 | .5011 | 1.392 | 3.541 | .0 | 5.0 |
| Organization | 15 | 2.030 | 1.4663 | .3786 | 1.288 | 2.912 | .0 | 5.0 |
| Vocabulary | 15 | 1.800 | .7746 | .2000 | 1.371 | 2.229 | 1.0 | 3.0 |
| Language Use | 15 | .833 | .5876 | .1517 | .508 | 1.159 | .0 | 2.0 |
| Mechanic | 15 | .533 | .4419 | .1141 | .289 | .778 | .0 | 1.0 |
| Total | 75 | 7.65 | 1.3759 | .1589 | 1.230 | 1.863 | .0 | 5.0 |

All aspects of writing enhanced after being taught using Process Approach-based Mind Mapping based on the results of the pretest and posttest analysis but the most enhancement aspect was content (32.16%). To sum up, after being taught using Process Approach-based Mind Mapping, the students' writing achievement improved.

**DISCUSSION**
*There is significant improvement of students' writing achievement after being taught by using Process Approach-Based Mind Mapping*
The findings of the research showed that Process Approach-Based Mind Mapping assisted the teacher in conducting teaching writing in a different way and the students in engaging in the learning process. As a result, the students' ability to write improved at the end of the process. Based on the findings of the research, the researcher assumed that it is important to use approach and technique in teaching writing in order to change the way of teaching that leads to successful outcomes. The research revealed that students' writing abilities improved significantly after being taught using Process Approach-Based Mind Mapping. It was derived from hypothesis testing, which proved that the H1 hypothesis

testing was accepted. The difference between the pretest (64) and posttest (71.7) indicates the improvement.

The students were given the pretest in the beginning of this research. It was given to the students before they were given the treatments to assess their ability to write procedural text. The researcher noted that the majority of the students were confused to write during the pretest. They continued wondering what should come first, so they asked an example of procedural text. Some difficulties found were converting their ideas into written words and organizing them into paragraphs. It is in line with Harmer (2007) who argued that students lack confidence in writing because they have nothing to write about.

Throughout the treatment, the researcher found that the students seemed to have more ideas when writing. They might benefit from having an organized display of information from the start of the writing process because it is more easily converted into a draft. This is in line with Khusniyah (2019), Al-Zyoud, Al Jamal, &Baniabdelrahman (2017), and Bukhari (2016) who stated that Mind Mapping encourages students to express their thoughts, imagination, and creativity into writing. It could be seen from the result of the posttest which was better than pretest.

Following the completion of the treatments, each student wrote a procedural text. Because they had planned out what they were going to write by using Mind Mapping, the students developed their thoughts clearly and logically. Furthermore, the treatments provided students with processes that allowed them to learn in a straightforward and intelligible learning. As a result, the students could understand the material. The Process Approach consists of four stages that encourage students to feel free to express themselves through writing messages by providing them with multiple opportunities.

First, planning allowed students to consider concepts that might be linked to what they wanted to write. According to Karatay (2015), planning assists students to focus on the thought process, be aware of each stage, and produce qualified writing products. Planning assisted students in organizing their ideas through the use of Mind Mapping, which involves writing down all of the essential ideas on a page with key terms based on the topic assigned by the teacher. The students felt that using it made planning more flexible. They did not have to worry about arranging their ideas; it was more crucial to get all of their ideas out first. As a result, the students were able to write some words or phrases in their mind mapping at this point.

Henceforth, according to Suyanto (2010), many students find writing is challenging, and the most challenging part of writing is getting started. He claims Mind Mapping reduces the difficulties by providing students with an organizing strategy to get them started. Ideas are freely connected and written out without pressure in Mind Mapping. It suggests that planning using Mind Mapping definitely helped the students organize their ideas. They created sentences after making Mind Mapping with some words, which will be put into a procedure text.

Second, by emphasizing ideas development, organization, and elaboration, drafting encouraged pupils to create a text. Bae (2011) argued that while drafting, students concentrate on writing ideass down on paper without paying attention to grammatical or mechanical errors. The students developed their sentences or outlined concepts into the first draft of a procedural text at this level. These outlined ideas were produced during the planning and prewriting stages, which are the preceding steps in a standard writing process that include idea generation, basic organization, and outlining.

Third, the teacher revised the students' work during the editing stage by focusing on the five aspects of writing. It is referred to as feedback. He also guided and oversaw the students in their ability to make good writing. It is in line with Martinez, Lopez-Diaz, and Perez (2019), editing focuses on evaluating the alignment and overall cohesiveness of the text. Students pay close attention to the overall content and organization of the work, seeking consistency and avoiding specific errors throughout. The teacher can also draw students' attention to assignment-specific guidelines. In line with the students' improved posttest scores, this indicates that the teacher's input truly assisted the students in correcting their writing errors. Moreover, it is in accordance with Sermsook, Liamnimitr, and Pochakorn (2017), in their research, discovered that teacher feedback is a useful technique for supporting lower proficiency or novice EFL students in overcoming the problems of minor grammatical rules in their writing, such as articles and prepositions, in their research. It is also proposed that such feedback be used to clarify untreatable grammatical issues, such as sentence structure, word choice, and so on. Though this form of feedback is beneficial, it must be used with caution in writing classes. It may be a negative tool that discourages students' language learning if not used carefully by teachers.

The fourth, final, version was all about refining the wording. It was the final stage in which the students handed in their final drafts to the teacher. Before submitting their draft to the teacher, the students ensured that it was complete. Furthermore, the students understood the general structure of procedural writing and were able to write down their opinions.

Mind Mapping is helpful in keeping the students focused on generating and developing ideas while writing. This finding was in line with Marashi and Kangani (2017) who discovered that incorporating MM into the writing teaching process has potential to increase students' attention and participation in the learning process.This could be because MM alleviates the anxiety of not knowing where to begin, continue, or finish the writing process.

Furthermore, when the students had been introduced with Process Approach Based Mind Mapping, they were capable of coming up with an idea. It makes them had ideas to write and knew where to start. So, they could express their thoughts on a pre-selected topic, and they developed their ideas based on their understanding. This finding also in agreement with Flora (2019) who stated that Mind Mapping is an effective technique for

boosting students' writing abilities by eliminating their problem with creating and organizing thoughts. In fact, the goal of this technique was to develop sufficient teaching procedures capable which were able to solve students' writing problems, particularly during the prewriting process. Furthermore, it was intended to provide a solution for students at the intermediate level who have acquired sufficient vocabulary and grammar but are having difficulty organizing and producing ideas for writing. Moreover, Buran and Filyukov (2015) noted that the use of mind mapping techniques in language teaching allows students to participate actively, while the teacher acts as a facilitator and coordinator, guiding the students. The most important finding of their research was that mind maps are efficient for problem solving, idea generation, learning new vocabulary, taking notes, and preparing presentations.

In addition, the stages of the Process Approach could effectively help students to learn how to write a text successfully since the teacher gave them clear instructions on how to complete the activity at each stage of the writing process (Flora, Cahyadi, and Sukirlan, 2020). Hassan and Akhan (2020) also found that the Process Writing Approach has a statistically significant positive influence on writing performance because it emphasized the document creation phase or all of the fundamental aspects of writing. Another research was conducted by Dokchandra (2018) who noted that The Process Writing Approach has a statistically significant beneficial impact on paragraph writing success. Many aspects of writing have been thoroughly investigated in studies where this technique was utilized since the process writing approach focuses on the process of text construction. PWA steps could be related to significant improvements in students' paragraph writing. The steps involved the students in systematic attempts to produce written products, thereby enhancing their writing performance.

To summarize, the students' final work improved significantly from the pretest because their writing was more specific, well-organized, and contained only a few errors in vocabulary and language use.

**Content is aspect ofwriting enhances the most after they have been taught by using Process Approach-Based Mind Mapping**

After being taught by using Process Approach-Based Mind Mapping, all aspects of writing enhanced because the students wrote the text carefully and they were more focused on each writing process. The content and organization of the text were good enough; in addition, the language use, vocabulary, and mechanics of students' writing also enhanced. The most enhancement aspect of writing was content. The gain score of content aspect was 2.46 (32.16%). Process Approach-Based Mind Mapping could be used to help students to organize their thoughts by allowing individual brainstorming with graphics. As a result, it was believed that by modifying Mind Mapping with Process Approach, it assisted in the appropriate application of this technique in all writing processes. The Process Approach in Mind Mapping provided students with an organized direction for writing. It highlights four primary stages in accordance with the Process

Approach: planning, drafting, editing (reflecting and amending), and final version. As noted by Pradasari and Pratiwi (2018) that Mind Mapping could be utilized to improve students' writing skills and to tackle the problem of creating and organizing ideas before writing. It also resulted in a more positive attitude toward teaching and learning. Karim, Abu, and Khaja (2016) also concluded that Mind Mapping helps them organize their ideas before moving on to writing, create more ideas in their writing because they can give numerous examples based on it, allows them to list their points and easily elaborate on them, and allows them to develop their ideas more readily. Moreover, Zhang (2018) found that Mind mapping has the potential to benefit Chinese EFL students improve their writing skills, particularly in terms of content and organization. Drawing mind maps allows students to activate prior knowledge and experiences, connect diverse concepts, and organize this information into a logical whole. All of these activities help students with their writing process.

Furthermore, the process approach provided students with more opportunities to write. According to Brown (2001), One of the benefits of the process approach is that it allows students to think while they write. The process of thinking broadens students' thoughts and insight. When it comes to the creative process, the students have a lot of new ideas that they can use into their work. Nabhan (2016) also stated in his study that the Process Approach aided students in improving their writing abilities because it included certain steps activities. Students participated in each activity in depth so that they could find their thoughts and develop them into good writing paragraphs. Moreover, Samsudin (2016) discovered that the Process Approach supported the recursiveness of natural writing and helped students to perform better in their writing, particularly content. This implies that teachers should encourage their student to rewrite and polish their thoughts even at the final draft stage so that they may produce a good text. Mehr (2017) also noted that the process approach requires writers to work on the writing task from beginning to the end. Using the mentioned approach in the classroom allows students to explore their ideas, thoughts, and develop their own writing. They are able to develop their writing skills because the teacher guide and assist them step by step by providing feedbacks. Furthermore, because they write the draft by themselves, it provides them positive outcome on their writing ability. Another study was conducted by Khaki and Tabrizi (2020) who found that using a process-based approach in teaching writing encourages students to write properly. Furthermore, students are allowed to write effectively and share their work with the teacher and other peers at the same time, while taking all of these feedbacks in order to improve their writing. Process approach is concerned with the process which ideas are developed and expressed in writing.

To sum up, all aspects of writing enhanced but the most enhancement aspect was content. The gain score of content aspect was 2.46 (32.16%). It is because the Process Approach-Based Mind Mapping benefit students from having an organized display of

information from the start of the writing process. Consequently, they could easily convert it into a draft.

## IV. Conclusion

The result of Paired Sample T-test indicates that Process Approach-Based Mind Mapping improves the students' writing achievement in procedural text since there is significant improvement from the pretest to posttest. It can be seen from the value of two tailed significance is 0.000.  It means that H1 is accepted because 0.00<0.05. Then, if the t-value (4.973) compared with t-table (2.144), it can be seen that the students' writing improves since t-value > t-table. It may be deduced that the choice of teaching technique is one of the important factors which influences pupils' writing abilities. In this research, Process Approach-Based Mind Mapping involves writing down a central thought and then coming up with new and related ideas from the center and help students organize their work into a well-ordered writing starts from pre-writing, planning, drafting, editing, and final version. The most enhancement aspect of writing was content. because Process Approach-Based Mind Mapping could be used to help students to organize their thoughts by allowing individual brainstorming with graphics and assist in the appropriate application of this technique in all writing processes. Moreover, the Process Approach in Mind Mapping provided students with an organized direction for writing so that they can compose a good and well-ordered writing. Process Approach-Based Mind Mapping have some benefits in teaching learning process. So, it is suggested to apply the Process Approach-Based Mind Mapping in the class to enhance the students' writing ability.

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