

**Process Approach-Based Mind Mapping to Enhance Students' Writing
Achievement in Composing Procedural Text**

A Thesis

By:

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**Master in English Language Teaching Study Program
Language and Arts Education Department
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University of Lampung
2022**

ABSTRACT

Process Approach-Based Mind Mapping to Enhance Students' Writing Achievement in Composing Procedural Text

As'ad Rizki As-shidqi

This present study aimed to find out 1) whether there is a significant difference of students' writing achievement after being taught by using Process Approach-Based Mind Mapping, 2) which aspect of students' writing enhances the most, and 3) the students' perception about the implementation of Process Approach-Based Mind Mapping. The population of the research was the third-grade students of SMPN 38 Bandar Lampung and the sample was class IX C. This research was quantitative in nature using One Group Pretest-Posttest Design. The instruments used in this research were writing tests and questionnaire. The data were analyzed using Paired-Sample t-test through SPSS 16.0. The results showed the students' writing achievement was enhanced as the average score of pretest was 68.6, posttest was 79.2 and the gain was 10.6. The value of two tailed significance is 0.000. It means that there is a significant difference of students' writing achievement from pretest to posttest after being taught by using Process Approach-Based Mind Mapping. By comparing t-value (11.337) and t-table (2.144), it was found out that the students' writing improves since $t\text{-value} > t\text{-table}$. In the form of aspects of writing, the most enhancement aspect of writing was content. It may be caused by the Process Approach-Based Mind Mapping that benefits students from having a structured display of information from the start of the writing process. Consequently, they could easily convert it into a draft. Then, the students' perception after being taught with Process Approach-Based Mind Mapping showed a positive result. It was believed that Process Approach-Based Mind Mapping could be effective to help students to arrange their thoughts by allowing individual brainstorming with graphics and provide students with a structured direction for writing. It highlights four primary stages in accordance with the Process Approach: planning, drafting, editing (reflecting and amending), and final version.

Keywords: mind mapping, process approach, writing

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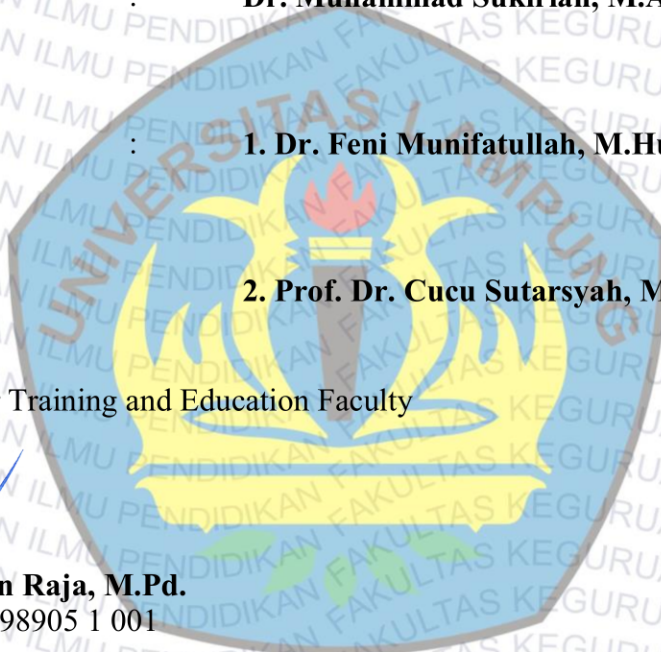
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CURRICULUM VITAE

As'ad Rizki As-shidiqi was born in Bandar Lampung, on June 13th. 1998. He is the second son in the family of Drs. H. Shodri Daram and Hj. Munashiroh, S.Ag, M.M., He has one older brother, Fahmy Firman Wahyudi, M.Pd.

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DEDICATION

The writer dedicates this work to:

1. His beloved parents – Shodri Daram and Munashiroh
2. His brother – Fahmy Firman Wahyudi
3. His Almamater – University of Lampung
4. His friends in Master in English Education Study Program
5. English Teachers

MOTTO

“Surely, good deeds erase bad deeds”

(Al Qur’an 11:114)

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Finally, the writer believes that his writing is still far from perfection. There might be weaknesses in this research. Thus, comments, critics, and suggestions are always open for better research. Somehow, the writer hopes this research would give a positive contribution to educational development, readers and to those who want to conduct further research.

Bandar Lampung, Maret 2022
The Writer

As'ad Rizki As-shidiqi

CONTENTS

ABSTRACT	i
COVER	ii
ADMISSION	v
CURRICULUM VITAE	vi
DEDICATION	vii
MOTTO	viii
ACKNOWLEDGEMENTS	ix
CONTENTS	xi
TABLES AND FIGURES	xiii
I. INTRODUCTION	1
1.1 Background of the Problem	1
1.2 Research Questions	5
1.3 Objectives of the Research	5
1.4 Uses of the Research	5
1.5 Scope of the Research	6
1.6 Definition of Terms	6
II. LITERATURE REVIEW	7
2.1 Concept of Writing	7
2.2 Types of Writing Text	8
2.3 Procedural Text	9
2.4 Teaching Writing	11
2.5 Types of Teaching Writing Approach	14
2.6 Process Approach	16
2.7 Concept of Mind Mapping	18
2.8 Concept of Process-Approach-Based Mind Mapping	21
2.9 Perception	23
2.10 Previous studies	24
2.11 Theoretical Assumption	29
2.12 Hypotheses	29
III. RESEARCH METHODS	30
3.1 Research Design	30
3.2 Population and Sample	30
3.3 Data Collecting Techniques	31
3.4 Instruments of the Research	31
3.5 Validity and Reliability of the Instruments	33
3.6 Research Procedures	36
3.7 Data Analysis	39
3.8 Hypothesis Testing	41
IV. RESULT AND DISCUSSION	43
4.1 Implementation of Process Approach-Based Mind Mapping	43
4.2 Result of Research	45
4.3 Discussions	52

V. CONCLUSIONS AND SUGGESTIONS.....	58
5.1 Conclusions.....	58
5.2 Suggestions	59
REFERENCES.....	61
APPENDICES	67

TABLES AND FIGURES

Table 2.1. Differences between Process and Product Approaches	15
Table 2.2 The process of Process-Approach-Based Mind Mapping.....	22
Table 2.3. Summary of the Result of Relevant Studies	27
Table 3.1. The Scoring Criteria.....	32
Table 3.2. The Specifications of the Perception Questionnaire	33
Table 3.3. Result of Reliability	35
Table 3.4. The Guideline for Describing Alpha Value	36
Table 3.5. Reliability of Questionnaire	36
Table 3.6. Normality Test	40
Table 3.7. Rating Scale	41
Table 3.8. Scoring Criteria of Questionnaire responses.....	41
Table 4.1. Result of Pretest	46
Table 4.2. Result of Posttest	46
Table 4.3. Hypotheses Testing	47
Table 4.4. The Enhancement of Aspects of Writing	48
Table 4.5. The Result of Students' Perception	49
Table 4.6. Prewriting Result	50
Table 4.7. Planning Result	50
Table 4.8. Drafting Result	51
Table 4.9. Editing Result	51
Table 4.10. Final Version Result	51
Figure 4.1. The Enhancement of each Aspect of Writing in Procedural Text	48

I. INTRODUCTION

This chapter begins with the background that elaborates the problem and judgment as the appropriate reason in conducting this research. The research question, objectives, and uses are also presented in this chapter. In the end of this chapter, the scope and definitions of terms are explained by the researcher

1.1. Background of The Problem

Writing can be defined as a process of transforming thoughts into written language (Tiwari, 2005:120). Besides, writing is a complicated skill that requires processes so several things should be considered. This is in line with Brown's (2001) statement who says that written products are the result of thinking, drafting, and revising that required specialized skills on how to generate ideas, organize them coherently, discourse markers and rhetorical conventions coherently into a written text, revise a text for clearer meaning, edit a text for appropriate grammar and produce a final product. So, students must have a sufficient number of thoughts and organize them properly during the writing process.

In teaching writing, there are two various popular approaches: product and process approach (Selvaraj and Aziz, 2019). The product approach which focuses on form is a traditional or text-based technique which is still employed in the learning process today. The teacher frequently gives authoritative texts for students to imitate or adapt in this approach (Tribble, 1997). While Hyland (2003) notes that the process approach puts major focus on the process of writing, such as how writers develop their ideas. He also explains that the students are given enough time to go through the writing process along with appropriate feedback from teachers.

According to the experiences of many teachers and students of foreign languages, the process of learning and teaching productive skills, particularly writing skills, is the most challenging of the four skills taught in schools (Hossain, 2015). It is still considered as a complicated skill for students to master because it involves a complex activity requiring comprehensive skills that includes the ability to express the writers' opinions or thoughts clearly, efficiently and by paying attention to the process of writing.

With regard to the above statement, in fact, the students have low capability of writing in English as several previous studies support. Fareed, Ashraf, and Bilal (2016) found that poor writing skills originate from two factors: the teacher and the students. Teachers' lack of medium to teach writing, including providing prompt and effective feedback to students. Furthermore, the students are not familiar with the writing process. Samsudin (2016) states that many students struggle with writing their assignments. This is due to the fact that they must write texts. However, as they lack experience or training in writing texts, they are unable to perform adequately. Flora, Cahyadi, and Sukirlan (2020) also argue that the students still have problems expressing their ideas in English. It is related to Richards and Renandya's (2002) assumption that the difficulty of writing comes not only in developing and organizing ideas, but also in turning those ideas into readable text.

In order to address the problems highlighted above, the process approach is thought to be an effective method of encouraging students to enhance their writing achievement. In conformity with Kansizoglu and Comert (2017) that that process-based writing approach is effective at different teaching levels, and the difference between teaching levels is statistically significant. The impact of process-based writing approach on several aspects of writing has also been investigated within the framework of this study. As a consequence of the research, process-based writing techniques influenced students' writing achievement in eight areas in a positive and significant way: planning, spelling, presentation, sentence fluency, ideas, form of expression, organization and vocabulary choice. Imelda, Cahyono, Astuti (2019)

add that the effectiveness of applying process writing approach combined with video-based mobile learning on teaching procedure text writing gave the learners' engagement in writing composition confidently. Another study was conducted by Martinez, Lopez-Diaz, and Perez (2019) who found that after process writing instruction, students were able to pay closer attention to the quality of those texts; thus, their scores increased due to the presence of higher-quality items such as topic sentences and a more coherent structure.

As an approach, process writing is a suitable approach to develop and support students' second language writing proficiency, which benefits them in many ways. Therefore, the researcher intends to modify Mind Mapping with the Process Approach. Several studies proved the effectiveness of Mind Mapping in teaching EFL students. Khusniyah (2019) declared that through the mind mapping technique, students can develop their mind and also make students creative in finding the ideas. Furthermore, Al-Zyoud, Al Jamal, and Baniabdelrahman (2017) concluded that the mind mapping technique proved to be a good and creative strategy because it allowed students to generate new ideas for essays and writing tasks. Bukhari (2016) also found the students' writing abilities were improved as a result of the Mind Mapping techniques and there is an improvement in the students' usage of cohesive devices, sequential patterns, and connoted thoughts, indicating that the Mind mapping techniques are effective.

Actually, several previous studies have looked into the effectiveness of employing Mind Mapping to teach writing to EFL students. However, it was still constrained in its application, which was typically used mainly during the prewriting phase. In accordance with Flora (2019) that Mind Mapping can be utilized to assist pupils in organizing their thoughts by allowing individual brainstorming practice with graphics. Therefore, by modifying 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.

Aside from the teacher's teaching strategies, methods, and approaches for teaching writing, another factor that plays a vital role in assuring the efficacy of a learning process in the classroom is students' perception. Kreitner and Kinicki (1992: 126) states perception as a mental and cognitive process that enables people to interpret and understand the surroundings. Students' perceptions of the strategies in the learning of writing may influence their choices of the strategies that will be used by the teacher. As a result, students may have a negative or positive perception of the techniques used in learning writing.

The students' perception is an important factor in the learning process. In accordance with Kourieos & Evripidou (2013), they argue that learners' view about effective language learning appears to consciously or automatically direct their action which support their own learning and most importantly influence their positive response or resistance and dissatisfaction to teaching activities. Therefore, the identification of students' perception becomes the most important part to evaluate the strategies that teachers used. It is aimed at knowing what students need for their learning activity to reach the learning goals. Students' perceptions might be either positive or negative. When students have a positive perception of the teaching-learning process, they are more likely to join and become involved in the teaching and learning of English. However, if the perception is negative, the process of accepting the message from the teacher's written feedback will be interrupted. Consequently, students will make the same mistakes and they will be unable to enhance their writing skills.

Based on the elaborations above, this study aims to investigate the effectiveness of Process Approach-Based Mind Mapping to improve students' writing achievement in composing procedural text. Moreover, the researcher also identifies the students' perception about the implementation of Process Approach-based Mind Mapping.

1.2. Research Questions

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

1. Is there any significant difference 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?
3. How is the students' perception about the implementation of Process Approach-Based Mind Mapping?

1.3. Objectives of the Research

In relation to the statement of the problems above, the objectives of the research are determined as follows:

1. To find out whether there is a significant difference of students' writing achievement after being taught by using Process Approach-Based Mind Mapping.
2. To find out which aspect of students' writing enhances the most after they have been taught by using Process Approach-Based Mind Mapping.
3. To find out the students' perception about the implementation of Process Approach-Based Mind Mapping.

1.4. Uses of the Research

The uses of this research are as follows:

1. Theoretically
Theoretically, this research is to find a significant difference of the students' writing achievement after being taught by using Process Approach-Based Mind Mapping.
2. Practically, this study can be used as:
 - a. Information for those who want to use an appropriate technique to enhance the students' writing achievement.
 - b. To be a reference for the next researchers who will do research about Mind Mapping and Process Approach.

1.5. Scope of the Research

This study focused on finding out a significant difference of students' writing achievement after being taught by using Process Approach-Based Mind Mapping, finding out the aspect of students' writing enhances the most after they have been taught by using Process Approach-Based Mind Mapping and also the students' perception about the implementation of Process Approach-Based Mind Mapping. Before applying this technique, the materials including definition, social function, generic structure, and language features must be clearly provided to the students. This study focused on writing procedural text. The ninth-grade students of Junior High School were chosen as the participants of this study.

1.6. Definition of Terms

Some terms defined in order to give basic understanding of the related variables and concept. These are stated below:

1. Writing is a way of communication in which thoughts or ideas are conveyed or expressed through the written form of grammatically structured sentences.
2. Mind Mapping is a diagram used to represent words, ideas, tasks, or other items linked to and arranged around a central key word or idea.
3. Process Approach is the approach of teaching that focuses on the writing process. It is divided into four stages: planning, drafting, editing, and final version.
4. Perception is the process of interpreting information.
5. Procedural text is a piece of text that gives instructions for doing something.
6. Improvement is a process or an action to raise something to be a better result than before.

Shortly, this chapter has explained the introduction including background, research questions, objectives, uses, scope and definitions of terms. It will be continued by the literature reviews in the next chapter.

II. LITERATURE REVIEW

This chapter deals with concept of writing, types of writing text, procedural text, teaching writing, types of teaching writing approach, process approach, concept of mind mapping, concept of process approach-based mind mapping, perception, previous studies, theoretical assumption, and hypotheses.

2.1. Concept of Writing

Writing is an activity that involves the ability to make a word and develop a word into a text. It is not easy to write since it is the most challenging subject in the school because the students have to use English to compose a text. To improve this ability, it takes a series of practices; it cannot be mastered just once. In accordance with Jozsef (2001: 5), writing involves the development of a designed idea, the capture of mental representation of knowledge, and the experience with subjects. It can be said that writing is a skill in which the writers can explain their concept in the form of words, sentences, and paragraphs that are easy for the readers to understand.

Moreover, Wyrick (2011) says that writing is a productive skill, and it is a creative act in expressing ideas, and writing also can help the students to explore their thoughts and feelings. It means that writing is the development of a language through the use of words or phrases on paper. Brown (2001: 336) also claims that writing is a thinking process. Furthermore, he states that writing can be planned and given with an unlimited number of revisions before its release. All in all, writing reflects what we think and it can be said that writing is an important skill because it requires a process of communication that expresses feelings, ideas and thinking in a written form.

There are some aspects of writing that students should remember in order to write well. Celce-Murcia and Olshtain (2000) also states that the aspects of writing involve five aspects that should be considered, namely content, organization,

vocabulary, language use, and mechanics. Content refers to unity of the paragraph, organization refers to the coherence, vocabulary deals with word selection, language use focuses on grammar, and mechanics refers to punctuation and capitalization.

In addition, according to Jacobs et al (1981) there are five aspects of writing. They are:

1. Content refers to the substance of writing, the experience of the main idea (unity). It is identified by seeing the topic sentence. The topic sentence should express the main idea and reflect the entire paragraph.
2. Organization refers to the logical organization of the content (coherence). It contains sentences that are logically arranged and flow smoothly. Logical arrangement refers to the order of the sentences and ideas.
3. Vocabulary refers to the selection of words that are suitable to the content. It can be identified by seeing the word choice or diction in order to convey ideas to the reader.
4. Language Uses/Grammar refers to the use of the correct grammatical form of syntactic pattern on separating, combining, and grouping ideas in words, phrases, clauses, and sentences to bring out logical relationships in paragraph writing.
5. Mechanics includes spelling, punctuation, and citation of references, neatness and appearance.

In conclusion, it can be inferred that writing is an activity in the process of expressing and transferring ideas, thoughts, and feelings into written form. So, the English teachers must direct the students to make good writing. Besides, interesting activities will motivate and make the students enjoy the learning process.

2.2. Types of Writing Text

Derewianka (1990) defines a text as a meaningful stretch of language-oral or written. There are some types of writing text taught in junior high school. Below are the types of writing text that are included in the English K-13 syllabus.

1. Descriptive Text

Descriptive text describes a particular person, thing, or place. It talks about a specific person, place, or thing by mentioning its characteristics, parts, quantities, or qualities.

2. Recount Text

Recount text retells events which have already happened in time order. It begins with background information who, when, where describes the series of events in time order.

3. Procedure Text

Procedure text gives instructions on how to make or do something. It begins with a statement of goal (could be the title), lists materials needed and a series of steps (instructions) in order.

4. Narrative Text

Narrative text tells a story using a series of events. The scene or the event is set in a time and place that characters are introduced. It usually has a problem that is addressed and may contain a message.

From the explanation above, it can be concluded that there are some types of writing taught in junior high school based on the English syllabus in curriculum 2013. In this research, the researcher taught writing procedural text because this text was suitable with the syllabus of the sample in this research.

2.3. Procedural Text

Procedural text is also referred to as instructions. People are required to follow the steps written on the instruction to avoid making mistakes. Djatmika and Pambudi (2013) argue that procedure text is one of the kinds of text in English to tell or explain how to do something through action and steps. Generally, procedure text contains procedure, instruction, direction, manner, process, or steps to make or do something

Furthermore, Anderson and Anderson (2003) also defines procedure text as a piece of text that gives us instructions for doing something. According to Derewianka

(1990), procedure tells us how something is accomplished through a sequence of action and steps. It is a very important type because it enables us to get things done. It proposes to tell someone how to do or make something. Moreover, Gerot and Wignel (1994) state description about the procedure text as follows:

- Social Function:

To describe how something is accomplished through a sequence of actions or steps.

- Generic Structure of Procedure Text:

1. Goal (name of procedure to be carried out)
2. Material, such as things which are needed for completing the procedure (not required for all procedural text).
3. Procedure or method list of steps to be followed.

A procedure text ideally has characteristics of language features (Derewianka, 1990). It uses *generalized non-human participants* to indicate a class of things like ingredients and tools. The *audience is referred to in a general way* by using you or not mentioned at all. *Linking words* are the most important feature; particularly related to time of sequence like first, then, and so on. Because of the generalization of the audience, *action verbs* are used in the form of simple present tense. Also, *imperative forms* are given in each of the stages.

In order to make the generic structure explanation be clear, here is the example of procedure text and generic structure:

<i>Purpose/goal</i>	: <i>How to serve yummy scrambled eggs at your home with this easy recipe!</i>
<i>Ingredients</i>	: <i>2 eggs, milk (if desired), 1 teaspoon of butter, a pinch of salt and pepper</i>
<i>Steps:</i> <ol style="list-style-type: none"> 1. <i>First, crack the egg into a small bowl.</i> 2. <i>In a frying pan, add butter and let it melt.</i> 3. <i>Pour the egg into the frying pan.</i> 4. <i>Add a pinch of salt and pepper. Whisk until all well blended</i> 5. <i>After that, fold the egg to the center and stir with spatula.</i> 6. <i>Lift the eggs, put on the serving plate and your scrambled eggs are ready.</i> 	

It can be concluded that procedural text is a text that explains or helps us how to make or use something. The differences between a procedure text and other texts

are in generic structure (goal, materials, procedure), function (to describe how something is accomplished through a sequence of actions or steps) and language features. Moreover, the main difference is that a procedure text is constructed in the sequences of instructions and commands. So, to make a good procedural text, those stages must be integrated as a whole. By learning procedure text, the students are able to know how to make or use something.

2.4. Teaching Writing

Teaching writing is to teach students how to express their ideas or imagination in written form. When students learn to write, they should not only learn how to write well, but they should also learn how to improve their writing by following the guideline of arranging their words in the correct position. In consonance with Harmer (2004), there are four elements in writing process, they are:

1. Planning

There are three main things that writers must consider during the planning process. First, the writers must determine the goal of their writing. It is critical for students to understand the goal of writing; knowing the objective of our writing allows writers to choose the most appropriate language style. As a result, the outcome will be effective in achieving the goal. Then, writers must consider the audience. The reader will be the audience since he or she will affect the majority of the language styles, diction, and paragraph structure. Next, writers must evaluate the content structure like how to arrange the facts, ideas, or arguments that they have selected to include.

2. Drafting

A draft is the first version of a piece of writing. A lot of time should be allotted to the first draft, and students should be reminded that at this phase, they should focus on the development of ideas and the organization of those ideas rather than the perfect grammar, punctuation, or spelling.

3. Editing

Editing entails the students reread what they wrote as a draft. Writers can minimize errors and increase the effectiveness of their writing by doing so. When students are editing, they may notice anything that needs to be revised to

make their writing better. For example, the information is not clear, the grammar is incorrect, the sentences have ambiguous meaning, and the writers write in the wrong order. If students identify these mistakes, they should change or correct them.

4. Final Version

The final process is the final version. After all of the processes are completed, the writers create the final version. It is likely that the final product differs significantly from the plan and draft. It comes as a result of the numerous changes that occur during the editing process. Any unnecessary information in the draft can be deleted, and any improper diction can be changed.

Furthermore, Oshima and Hogue (1999) offer four steps in the writing process to generate successful writing: prewriting, planning, writing or drafting, and revising the draft. They are discussed further below:

1. Prewriting

The first step in the writing process is to select a topic and gather information about it. This is sometimes referred to as prewriting since it is completed before beginning to write. After selecting a topic and narrowing it down, the following stage in the prewriting process is to gather information and generate ideas. It will be necessary to use other sources for certain writing tasks, such as newspapers, magazines, library books, or the Internet.

2. Planning

During the planning step, organize your thoughts into an outline. A paragraph should be very simple to write with an outline. There is a topic sentence, supporting points, supporting details, and a conclusion sentence.

3. Writing/Drafting

Writing the rough draft is the third step in the writing process. Follow the outline as closely as possible, and do not think about grammar, punctuation, or spelling. A rough draft is not supposed to be polished.

4. Revising the Draft

The fourth and last phase in the writing process is to polish your writing. This is also known as revising and editing. Polishing is most effective when done in two phases. First, deal with the major concerns of content and organization (revising). Second, focus on minor grammatical and punctuation errors (editing). After writing the rough draft, the following stage is to revise it. When revising, change what you have written to make it better. Check it for content and organization, as well as unity, coherence, and logic. It may be changed, reorganized, added, or deleted in order to communicate ideas in a clearer, more effective, and more interesting way.

According to Richard and Renandya (2002), the writing process consists of planning, drafting, and editing. First, students are encouraged to write throughout the planning step. Following that, the drafting stage focuses on writing fluency rather than grammatical accuracy or the neatness of the draft. Then, the students rewrite their writing based on feedback provided during the revising stage. Finally, during the editing step, students are responsible for polishing their works as they prepare the final draft to be reviewed by the teacher.

Coffin et al. (2003) note that teaching writing focuses on text and process. In teaching writing that focuses on text procedure text is used in this study. Following that, there are several cases that are included in teaching writing that emphasize on process, and they are as follows: prewriting, drafting, reflection, and editing.

Among four processes of writing, prewriting is the most difficult. In line with Kozma (1991), for many writers, the most difficult part of the writing process is getting started. Prewriting requires a lot of time and attention because it helps with a problem known as "writer's block". Writers spend more time on prewriting than inexperienced ones. Students may believe they are incapable of coming up with an

idea. They essentially have a blank page and keep writing and erasing. They cannot even start since they do not know where to start. To help students in terms of prewriting, the researcher will use Mind Mapping.

With regard to the clarification above, it can now be inferred that there are various processes or stages that should be addressed in order to produce a good piece of writing, such as planning, drafting, editing (reflecting and revising), and final version. The researcher followed the four processes to teach writing from Harmer (2004).

2.5. Types of Teaching Writing Approach

In fact, there are various approaches for teaching writing. It will determine how writing will be taught in the coming. They are two common approaches; they are Product and Process Approach. When teaching writing, teachers can either focus on the finished product or on the writing process itself. When focusing on the product, teachers are only concerned with the task's goal and the end result (Harmer, 2007). Supporting this idea, Brown (2001) divides the teaching writing approaches into Product and Process.

1. Product Approach is one that encourages pupils to imitate the writing model provided by teachers. The teachers model text writing for the students, and the students must imitate depending on the model. Therefore, the product of writing should be the same as the model. In addition, Brown (2001: 335) explains that writing should follow the English standard style and have grammatical accuracy as well as good organization. Product approach comprises four stages (Steel in Hasan and Akhand, 2010): First, the model text is studied by the students, and then the genre's features are highlighted. This activity encourages students to consider the conventions and style of several types of writing. Second is controlled practice. Students must practice the important generic features they identified in order to feel confident in producing their texts. Then, it is about organizing ideas. In the final step, students create the final product individually using the skills, structures, and vocabulary they have acquired.

2. Process Approach is defined as writing activities which involve some stages including drafting, getting feedback from the students' partner or from their teacher, and finally revising. According to Palpanadan, et. al (2014:790), process approach is a cyclical approach. In this approach, students are needed to move back and forth while going from one stage to another stage and taking part in the writing activities.

To know the differences between process and product approaches of writing, Steele (2004) makes comparison as follows:

Table 2.1. Differences between Process and Product Approach

Process Approach	Product Approach
Text as a resource for comparison	Imitate model text
Ideas as starting point	Organization of ideas are more important than ideas themselves
More than one draft	One draft
Collaborative	Individual
Emphasizes a process	Emphasize an end product

The product approach reflects a traditional, teacher-centered approach that focuses on what to write. In short, this is a one-way communication channel between the teacher and the students: Throughout the four stages, pupils write individually and the teacher reviews individually (Zhou, 2015). While the process writing approach is a student-centered that sees writing as a recursive process of planning, drafting, and revising that overlaps and intertwines. Students can freely discuss topics with peers or in groups, share ideas, communicate with classmates and the teacher, and receive feedback from the teacher during the writing process. Students, even those who are not good at writing, can learn to write (Zhou, 2015).

However, the weaknesses of product approaches are that process skills, such as text planning are given a relatively small role, and that learners' knowledge and skills are disregarded in the classroom. Their strengths include recognizing the need for learners to be provided with linguistic knowledge about texts and understanding that imitation is one of the learning process. While, the disadvantages of process approaches are that they frequently regard all writing as being produced by the same set of processes; that they put insufficient focus on the types of texts that writers produce and why such texts are produced; they provide insufficient input,

particularly in terms of linguistic knowledge, to learners in order for them to write successfully. The main benefits are that they recognize the value of writing abilities and appreciate what students bring to the writing classroom contributes to the development of writing ability (Badger and White, 2000).

2.6. Process Approach

Stanley (1993) argued that the Process Approach treats all writing as an act which requires time and positive feedback to be done well. In process writing, the teacher moves away from being someone who sets students a writing topic and receives the finished product for correction without any intervention in the writing process itself. 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). Furthermore, the teacher is not in an evaluator position, but an observer position that provides feedback throughout written expression. Teacher aids their students to reformulate their ideas by answering questions that help them plan their writing and show the students how to write.

Williams (2003) proposed that the writing process has some stages: planning, drafting, revising, publishing. Planning entails thinking about logical purpose, the main goal of the text, how these factors are related, and how they relate to the information generated during prewriting. It also entails selecting support for your claim. The next step is to begin writing a first draft. One of the influencing factors in a good drafting process is discipline. students must manage their time. Another essential factor is flexibility. Many student writers believe that their first draft should be flawless, so they spend too much time on sentence structure and punctuation rather than focusing on relating their ideas on paper. Some students may come up with a good concept while writing a draft and become so concerned with how to portray it that they overstate or develop it in an uninteresting way. Students should be aware that first drafts are not often well ordered. The initial draft should essentially outline the topic. Then, revising demands that writers reflect on their role and their readers regarding the topic. Effective revising depends on

understanding the reader's motivation to read the written work. Thus, writers must be willing to edit confusing sentences or paragraphs and shift parts from one position to another in order to improve the organization of their writing. The accomplishment of making a writing readily accessible is referred to as publishing. Writing is not confidential. Thus, the written text is intended for others to read.

Moreover, Mather and Jaffe (2002) stated that writing should be regarded as a process of interactive and recursive stages. These stages are prewriting (planning), writing (composing), rewriting (revising and editing), and sharing. During planning, students are assisted in generating topics by brainstorming and sharing ideas with others. They must also consider the aim of the writing as well as the intended audience. They begin composing their first draft after deciding a topic. During the revising step, students revise their draft and concentrate on their idea organization and vocabulary selection.

Johnson (2008) also noted that there are five steps of process approach:

1) Planning

The purpose is to come up with ideas. Ideas can be generated via listing, brainstorming, outlining, silent thinking, and conversation with friends.

2) Drafting

The writer's first attempt to capture ideas on paper is called drafting. Here, quantity is more important than quality.

3) Revising

This is the most important part of the writing process. Students' writings are revised and reshaped several times during revising

4) Editing

Grammar, spelling, and punctuation mistakes are corrected at this stage. The flow of ideas and the quality of writing suffer when writers are editing or concerned with mechanics during the planning, drafting, and revising processes.

5) Publishing

This is where readers can read what students have written. Publishing can include creating class books, writing collections, school or class newspapers,

school or class magazines, or showcasing brief samples of writing in the hall or in the community.

Harmer (2004) argued that the process of writing has four main elements. They are planning, drafting, editing (reflecting and revising), and final version. Furthermore, Coffin et. Al (2003) explained the stages of process writing:

1. Prewriting is to find the ideas, collect information, and organize the thoughts. Prewriting strategies include brainstorming, free-writing and journal writing. After that, the next stage is that the students begin to organize by mind mapping, clustering, and branching.
2. Drafting. In drafting, students develop the meaning using ideas in pre-writing strategies, narrow down the broad focus, and remove or add information.
3. Peer review. In this stage, students seek and respond to others while a text is under development. Peer review can be in the form of oral or written comment by peers using guidelines from the teacher.
4. Reflection. It means letting the piece of writing sit for a while before coming back to it with a fresh mind. Reflection time allows the students to see the gaps in the writing task.
5. Editing and proofreading. Students should attend with the mechanics of writing, including formatting and language accuracy. The final stages include polishing the text.

In short, this research intended to modify Mind Mapping based on Process Approach by following the guideline from Harmer (2004) in order 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.

2.7. Concept of Mind Mapping

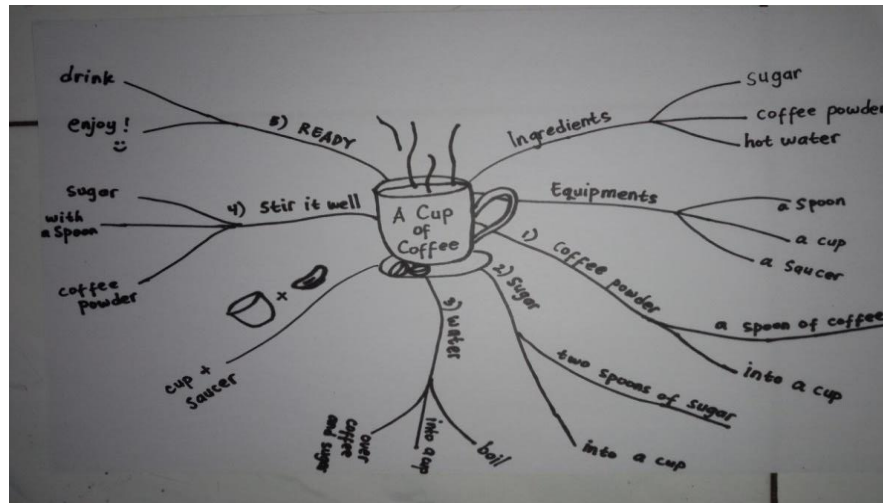
This mind mapping concept was furthered by Quillian, R. and Collins, A. in the 1960s. They both used a kind of network where all the concepts and ideas were related by links that would show them how a certain object is related to another. The concepts of visual thought representation (mind mapping) have been used for

many purposes. They are evidently present in brainstorming, note-taking, problem-solving, memory, learning, and visual thinking techniques used by educators, psychologists, engineers, and other professionals that need to think intensively before making conclusions. However, in the late 1960s, a British psychologist, Buzan, T. made the use of mind mapping very popular. He even created a set of rules to be used during the process.

Buzan (2003) stated that mind mapping was a graphic representation of ideas (usually generated via brainstorming session) which showed generated ideas around a central theme and how they are interlinked. He used a two-dimensional structure instead of the list format conventionally used to take notes. Mind-mapping aids students in the process of absorbing information, conquering challenging challenges, and generating detailed plans. In line with Steele (2004) that states mind-mapping as a diagram used for linking words and ideas to a central key word. It means mind-mapping can help in constructing a written text.

Oshima and Hogue (2006:72) add that Mind Map or Outline not only organizes your thoughts, but it also keeps you on track once you begin to write. It can be assumed that Mind Mapping entails writing down a key idea and then brainstorming new and related ideas that branch out from the center. By focusing on key ideas put down in your own words and then looking for branches out and links between the ideas, you are mapping knowledge in a way that will assist you in understanding and remembering new information. Some students may benefit from having an organized display of information from the start of the writing process because it is more easily converted into a draft. Salem (2017) also argues that a Mind Mapping is a diagram used to represent words, ideas, tasks, or other items linked to and arranged around a central key word or idea. Students can map knowledge in a way that will help them learn better and retain material by focusing on key ideas written down in their own words and looking for connections between them.

This is an example of a standard Mind Mapping in a Procedure Text:



(Adapted from Foreman, P <http://mindmappinginspiration.com>)

According to Buzan (2003: 10), applying mind mapping is easy. We should just remember these five easy steps:

1. Use a blank sheet of unlined paper and some colored pens. Make sure the paper is placed sideways
2. Draw a picture in the middle of the page that sums up your main subject. The picture represents your main topic.
3. Draw some thick curved, connected lines coming away from the picture in the middle of the page, one for each of the main ideas you have about your subject. The central branches represent your main sub topic.
4. Name each of these ideas, then if you want to draw a little picture of each this uses both sides of the brain. Words are underlined throughout a mind map. This is because they are keywords and the underlining as in normal notes, shows their importance.
5. From each of these ideas, you can draw other connected lines spreading like the branches of a tree and your thoughts on each of these ideas. These additional branches represent the details.

Salem (2017) also explains the procedures of Mind Mapping. These are the procedures:

1. The students are dealing with aspects of writing.

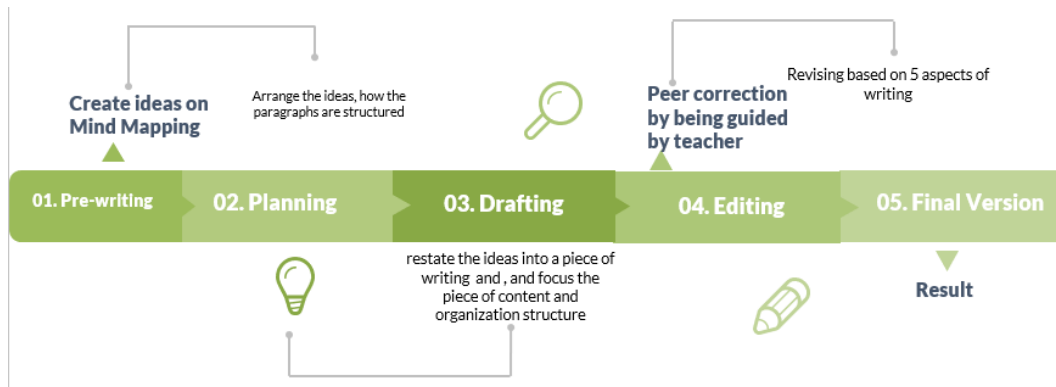
2. The teacher gives the topic to the students.
3. The teacher explains Mind Mapping to the students.
4. Produce a text

To sum up, mind mapping can represent words, ideas, tasks, or other items that are linked to and structured around a central key word or idea.

2.8. Concept of Process Approach-Based Mind Mapping

Mind Mapping is logical means of gathering and making notes that literally "mapped out" ideas. It can be used as a visual way to make prepared notes as one of the most effective ways to contribute to brainstorming sessions. Students began with a central issue and then built a web of ideas from that. In terms of brainstorming, Bailey (2006) notes that it is better to begin preparing with a topic analysis and then write down any potentially related ideas. Individual brainstorming for pre-writing can also be done and Mind Mapping is the most commonly used technique. However, Yunus and Chien (2016) state that students who lack drawing abilities require more time to create a mind map since they are usually more focused on creating an effective mind map with appropriate visual assistance rather than estimating time to create a decent writing product. Considering a decent writing product, the researcher is interested in modifying Mind Map with Process Approach.

Process Approach can influence writers to work on a writing task from beginning to the end. Using the aforementioned approach in the classroom allows students to explore their ideas and thoughts, discover the meaning, and gradually develop their own writing (Mehr, 2017). This research intends to modify Salem's Mind Mapping based on Process Approach in order to assist the application of this technique appropriately and solve students' problems in each writing process. The Process Approach used involves planning, drafting, editing (reflecting and revising), and final version. The process can be organized as follows:

Table 2.2. The process of Process-Approach-Based Mind Mapping.

With regard to the table above, here are the explanation about the steps of the modified one:

1. Planning

- The teacher asks the questions to the students that are related to the topic which will be discussed:
Have you ever made food or drink?
What kind of food or drink have you made?
- The teacher provides a video of procedural text to the students and let them watch it.
- The students are asked about the video:
What is the video about?
What is the first step you should do?
After you do that step, what should you do next?
- The teacher tells the students about the material they will learn. It is about procedural text.
- The teacher explains the definition, generic structure and language features of procedural text.
- After the students are familiar with Mind Mapping, they are given the new topic and the teacher asks them to start creating their own ideas by writing them on mind mapping by using diagrams or branches.

2. Drafting

- In drafting, the teacher asks the students to determine which ideas they will cover, then group the ideas. The group of ideas will become their paragraph in a short writing or longer paragraph.

- The students are asked to produce the procedure text by following the guidance of Mind Mapping they have made. This activity becomes their draft.

3. Editing

- In this stage, the students' writings are revised many times. The students are told by the teacher about five writing aspects, such as content, organization, vocabulary, language use and mechanics.
- The students correct their friends' work in the form of oral or written comments using guidelines from the teacher.
- The teacher monitors peer correction process and guides them to compose procedural text based on five aspects of writing

4. Final Version

- The students submit the final draft
- Then, the teacher evaluates the students' writing

In regard to the steps mentioned above, the researcher believes that it can help the teacher and the students be active and the learning process becomes enjoyable in delivering and accepting the material by using Process-Approach-Based Mind Mapping. Besides, it is undeniably the best strategy in order to help the students be able to have a good writing text; it involves outright steps or processes of writing.

2.9. Perception

Perception is critical in understanding human behavior since everyone perceives things differently. One individual's interpretation of the facts may differ from another person's interpretation of the facts, and how a person perceives something determines how they react to it. In line with Mouly (1973:93) who states that two persons looking at the same phenomenon may see very different things. Students are often critical; they usually have a strong sense of whether a teacher prepares his or her lesson, teaches relevant subjects, and provides lessons that are entertaining, relevant, and at an appropriate level of difficulty. Students' perceptions are the thoughts or opinions that students have as a result of recognizing or noticing something.

Furthermore, evaluating the teaching technique used in the classroom can result in students' perception about the application of the teaching technique including the enjoyment of the learning process. Enjoyment can be defined as the feelings of pleasure and happiness that people experience when participating in an activity. Dewaele, et al (2017) consider enjoyment as a complex feeling encompassing interacting characteristics of the challenge and perceived ability that expresses the human drive for success in the face of challenging tasks. Teimouri (2016) also defines L2 enjoyment as positive emotions that language learners experience in the process of learning or using the target language. Therefore, the students will give their perception about each process of Process Approach-Based Mind Mapping which relates to their enjoyment of it.

2.10. Previous Studies

Several studies proved that Process Approach and Mind Mapping are effective in enhancing the students' writing ability. First study was conducted by Rumanti & Dewi (2020). The purpose of this research was to explore the impact of the process approach on students' writing achievement. The pre-test-post-test design was utilized in this study which included 60 students from a selected school in Bali. Following the implementation of the strategy, it was found that the students' writing skill improved. Students' writing improved in several aspects, including content, grammar, and vocabulary.

In another case, Imelda, Cahyono, & Astuti (2019) conducted the research about Process Approach. The purpose of their study was to look into the effect of a process writing approach paired with video-based mobile learning on the writing skill of Indonesian learners of English as a foreign language (EFL) at various levels of creativity. A quasi-experimental study with 61 Vocational High School students in Indonesia was used. They were divided into two groups: experimental and control. The treatment took place for five sessions, including the pre-test and post-test. The pre-test and post-test writing scores served as the foundation for quantitative data analysis, while the learners' responses to the creativity questionnaire were utilized

to categorize their creativity level. The result revealed that the process writing approach combined with video-based mobile learning was effective to enhance the learners' writing skill.

Another study was conducted by Martinez, Lopez-Diaz, & Perez (2019). The current research examined how process writing could be used to help students improve their writing skills in the context of paragraph writing. Students went through four lessons, and data was collected and analyzed using a pretest-posttest method. The paradigm employed to structure this study was Action Research. The result determined that process writing promotes greater writing skills, which leads to more organized and structured paragraphs.

In terms of Mind Mapping, Flora (2019) examined the efficacy of an integrated technique that used MM and TSI in teaching writing. The participants in this study were 29 students of the English Department Faculty of Education at Lampung University in Indonesia. The results demonstrated that integrating MM and TSI is beneficial in improving the writing process, particularly in developing the content aspect of writing. As a result of the interview, the students' ideas could be expanded. During the interview, the students might also learn new vocabulary linked to the topic being discussed because the students communicated the unfamiliar vocabulary in their own language and other (s) provided spontaneous assistance.

Khusniyah (2019) conducted a research about Mind Mapping in improving students' descriptive writing ability. The aims of her study were to find the effect of mind mapping on students' descriptive writing abilities as well as the process of mind mapping application in descriptive writing learning. The research study is a qualitative and quantitative study conducted using the action research method. 34 students were the sample. Credibility, transferability, dependability, and conformability were utilized to assess data validity. Data was gathered through the use of tests, observation, and interview. The finding of analysis that mind mapping implementation has increased the students' motivation of descriptive writing learning. They can make a good imagination in writing. The t-test result is t-stat

(5.38) > t-table (1.99). It means that there is a significant difference found in descriptive writing ability before and after using mind mapping.

Another study was conducted by Al-Zyoud, Al Jamal, & Baniabdelrahman (2017). The purpose of this study was to investigate the potential impact of a mind mapping technique on the development of Jordanian students' writing performance. During the second semester of the academic year 2016/2017, an experimental group and a control group were purposely chosen from eleventh grade students at Al Hashymiah School for Boys, Zarqa in Jordan. Twenty students in the experimental group were taught using the mind mapping process, whereas 20 students in the control group were taught using the traditional teaching method. The results show statistically significant differences (at 0.05) between the two mean scores of the experimental and control groups. The study proposes including the mind mapping technique into the English as a foreign Language (EFL) curriculum in Jordan since it aids in the development of students' writing skills and suggests looking into the impact of employing a mind mapping technique on EFL students' achievement in other language abilities and sub-skills. Teachers are also encouraged to employ the thought mapping technique in order to boost students' interest and motivation to write more frequently.

The last was a study conducted by Bukhari (2016). The study identified appropriate Mind mapping techniques to improve the writing abilities of EFL learners. It reviewed and analyzed the traditional strategies used in teaching writing to Saudi intermediate learners and identified relevant Mind mapping techniques, as well as an application procedure to improve writing skill. At the English Language Institute, the sample consisted of 40 intermediate students and 20 English language teachers. The project was divided into two phases: a survey phase and an experiment phase; began with a learners' placement test and a questionnaire distributed to EL teachers to collect data on commonly used strategies and problems encountered while teaching writing. Since, the main focus of the study was to identify the appropriate Mind mapping techniques to enhance the learners' writing ability, the experiment phase continued for 7-8 weeks. The statistical analysis of

the data was carried out by using Microsoft Excel and SPSS. The results indicated that the learners, who were taught through Mind maps, improved cohesion and coherence; content paragraph structure and length in writing. The results manifested that the hierarchical structure of the Mind mapping techniques used in the pre-writing process enhanced the EFL learners' writings.

Based on the previous studies stated above, it can be assumed that Process Approach and Mind Mapping can enhance students' writing ability. This research intended to modify Mind Mapping based on Process Approach in order to assist the application of this technique appropriately and solve students' problems in each writing process as well as to find out students' perception about the implementation of Process Approach-Based Mind Mapping.

Table 2.3. Summary of the Result of Relevant Studies

Studies	Journal	Methods	Result
Rumanti & Dewi (2020)	International Journal of Social Science Research, 2(2).	The research design of the current study is one group pre-test post-test design. The study was conducted one junior school in North Bali. This study involved 8 grade students which consisted of 60 students.	It was found that the students' writing skill improved. Students' writing improved in several aspects, including content, grammar, and vocabulary.
Imelda, Cahyono, & Astuti (2019)	International Journal of Instruction, 12(3).	A quasi-experimental study was employed involving 61 learners of Vocational High School learners in Indonesia. They were assigned into two groups: experimental and control. The treatment was conducted at 5 sessions, including the pre-test and post-test.	The result revealed that the process writing approach combined with video-based mobile learning was effective to enhance the learners' writing skill.
Martinez, Lopez-Diaz, & Perez (2019)	Revista Caribeña de Investigación Educativa (RECIE), 4(1).	Action Research (AR) involves taking a self-reflective, critical, and systematic approach to exploring one's own teaching context was chosen as the methodological approach. This project was implemented in a group of low intermediate class of 25 young adults ranging from 19 to 34 years old.	Students were able to pay closer attention to the quality of those texts; thus, their scores increased due to the presence of higher-quality items such as topic sentences and a more coherent structure.

Flora (2019)	International Journal of Language and Linguistics	A quantitative study in the form of pre-experimental design. 29 of students, majoring English, were involved as the participants of this study.	The integration of MM and TSI is effective in enhancing writing process, especially in developing the content aspect of writing.
Khusniyah (2019)	Research and Innovation in Language Learning, 2(1)	The research study used qualitative and quantitative research using action research method. Independent T-Test was used. The participant of research consisted of a total of 34 students from UIN Mataram in 2015-2016 academic years. The process of collecting data using observation and tests.	Using mind mapping technique to describe something is very useful and makes the teacher easier to apply the lesson. Because students are trained how to reflect what they think in a piece of paper and it cannot make a limitation from their ideas.
Al-Zyoud, Al Jamal, & Baniabdelrahman (2017)	Arab World English Journal, 8(4)	This study used quasi-experimental design. Forty eleventh grade male students' who were purposefully chosen from Al Hashymia School for Boys in Zarqa during the second academic year 2016-2017. An experimental group (n= 20) taught by mind mapping strategy and a control group (n= 20) students taught by the conventional method.	Findings of the present study demonstrate the positive effect of the mind mapping strategy on eleventh grade students' writing performance. Using the mind mapping strategy provides opportunities for students to come up with original and useful ideas.
Bukhari (2016)	International Journal of Linguistics and Communication	The sample included 40 intermediate learners and 20 English language teachers at the English Language Institute. The study divided into two phases; a Survey Phase and an Experiment Phase; started with the learners' placement test and a questionnaire.	The analysis of the pre-test and post-test results showed a higher degree of improvement in the learners' use of cohesive devices, sequential patterns, connoted ideas which ascertained that the Mind mapping techniques.

2.11. Theoretical Assumption

As formulated in the literature review above, Mind Mapping can represent words, ideas, tasks, or other items that are linked to and structured around a central key word or idea. Especially in teaching writing, by focusing on key ideas put down in their own words and then looking for branches out and links between the ideas, the students are mapping knowledge in a way that will assist them in understanding and

remembering new information. Some students may benefit from having an organized display of information from the start of the writing process because it is more easily converted into a draft. However, it still offers a limited procedure for resolving students' problems during each writing process, such as planning, drafting, editing (reflecting and revising), and final version. Process Approach-Based Mind Mapping is aimed to solve students' problems during the writing process because it can make students able to compose good products and well-ordered writing.

The researcher believes that teaching writing using Process Approach-Based Mind Mapping gives good effect in the learning process and expects to help students enhance their writing achievement especially in procedural text.

2.12. Hypotheses

There are two hypotheses presented based on the research questions formulated in this study. The null and alternative hypotheses are used to construct the hypotheses. The first hypothesis is addressed in order to answer the first research question, which is drawn as follows:

H_{01} : There is no significant difference of students' writing achievement after being taught by using Process Approach-Based Mind Mapping.

H_1 : There is a significant difference of students' writing achievement after being taught by using Process Approach-Based Mind Mapping.

III. RESEARCH METHODS

This chapter presents research design, population and sample, data collecting techniques, instruments of the research, validity and reliability of instruments, research procedures, data analysis, and hypotheses testing.

3.1. Research Design

This research used a quantitative approach. For the first research and second research questions, the researcher used an experimental design, while the third research question was in the form of a questionnaire to find out students' perception about the implementation of Process Approach-Based Mind Mapping. In addition, One Group Pretest-Posttest Design was used by the researcher in conducting the research because it was used to compare the students' writing achievement elicited through the score of a pretest and a posttest after treatments were given.

According to Setiyadi (2006), the design of the research was as follow:

T1 X T2

Where,

T1 : Pre-test

T2 : Post-test

X : Treatment (Process Approach-Based Mind Mapping)

3.2. 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 to see a significant difference of students' writing achievement after being taught by using Process Approach-Based Mind Mapping, it was class IX C consisted of 15 students. In this research, the

researcher used random sampling for the research, because the students in the second semester of the ninth grade of SMPN 38 Bandar Lampung in 2021/2022 Academic Year had the same chance to be selected as a sample. 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.

3.3. Data Collecting Techniques

In this research, there were two techniques employed in collecting the data. It could be elaborated as follows:

1. Administering Writing tests

Writing tests were administered to collect the data on students' procedural writing. The researcher asked students to write a procedure text individually with a given topic during the test. These written tests were given twice as the pretest before the treatments and posttest after the treatments.

2. Questionnaire

The questionnaire was given to every student in class. The questionnaire was held at the end of the research to find out the students' perception about implementation of Process Approach-Based Mind Mapping. The questionnaire consists of twenty close-ended statements. They allowed the students to select one answer and make the students easy to answer. The questionnaire was conducted in Indonesian in order to avoid misunderstanding between the researcher and students. In addition, the statements of the questionnaire are adapted from Munoz, Vega and Figueroa-Flores (2014); Li, Jiang and Dewaele (2017); Sclafani and Wickes (2017); Zumbrunn, et al (2019).

3.4. Instruments of the Research

There were two instruments used in this research, i.e. writing tests and a questionnaire.

3.4.1. Writing Tests

There were two writing tests administered in this research, i.e. pre-test and post-test. Both were sixty-minute tests. The students were asked to write procedural text by the researcher. Five aspects evaluated by the researcher were content, organization, vocabulary, language use, and mechanic. Scoring criteria was adapted from Jacobs et al (1981) in order to make the scores of each aspect of writing the same and fair. The score of the test was derived as follows:

1. Content : 30%
2. Language use : 25%
3. Organization : 20%
4. Vocabulary : 20%
5. Mechanic : 5%

(See appendix 5)

3.4.2. Questionnaire

It was conducted at the end of the research. It was used to know students' perception about the implementation Process Approach-Based Mind Mapping. The questionnaire consisted of twenty close-ended statements which were adapted from Munoz, Vega and Figueroa-Flores (2014); Sclafani and Wickes (2017); Li, Jiang and Dewaele (2018); Zumbrunn, et al (2019).

Table 3.1 The specifications of the perception questionnaire

Process Approach-Based Mind Mapping	Items
Pre-writing	1, 2, 3, 4
Planning	5, 6, 7, 8
Drafting	9, 10, 11, 12
Revising	13, 14, 15, 16
Publishing	17, 18, 19, 20

It is a Likert Scales-based questionnaire because it is the commonest scale to measure ordinal data (Setiyadi, 2006). The scale has the following categorical terms: strongly agree, agree, neutral, disagree, and strongly disagree.

Table 3.2 The point of each questionnaire scale

Scale	Point
Strongly agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	1

If the student answers all statements with strongly agree, the highest score will be 100 and the scores will be 20 if the student answers with strongly disagree.

3.5. Validity and Reliability of the Instruments

Validity and reliability demonstrate whether a test meets the criteria and is considered usable or not. The instruments of this research were the writing tests and the questionnaire. Thus, it was necessary to measure the validity and reliability of the tests and the questionnaire in order to obtain valid and reliable data.

3.5.1. Validity

A test is considered valid if it measures the object to be measured and is compatible with the criteria (Hatch and Farhady, 1982). According to them, there are two types of validity, i.e. Content validity and construct validity. An instrument was said to be valid if it measures accurately what it was intended to measure. In the research, the researcher will use content and construct validity.

1. Validity of Writing

Content validity of the test is a good representation of what has been taught and the knowledge which the teacher needs the students to know. In order to comply with the content validity, the test items of the instrument are designed in order to see whether they have represented the materials that are measured or not. In order to obtain the validity of the written test, it was adapted from the learning materials of the students which were in accordance with the curriculum of the

school (basic competence in the writing of the procedural text) which were learned by the ninth-grade students of the junior high school. While, construct validity deals with whether a test is in accordance with the theories of what it is supposed to measure (Hatch and Farhady, 1982). So, it is about whether the given test theoretically represents what it measures. In this research, the scoring criteria were based on the five aspects of writing adapted from Jacobs et al (1981), i.e. content, organization, vocabulary, language use, and mechanic.

2. Validity of Questionnaire

Questionnaire of this research was used to find out students' perception about the implementation of Process Approach-Based Mind Mapping. Construct validity of the questionnaire was achieved by looking at the relationship between the indicators. The questionnaire consisted of 20 close-ended statements about the implementation of Process Approach-Based Mind Mapping.

3.5.2 Reliability

1. Reliability of Writing Test

Reliability relates to the extent to which the test score was consistent and gives us an indication of how accurate the test scores were. In this study, interrater reliability was used to achieve the reliability of the pretest and posttest of writing.; The first rater is the researcher, and the second rater is the researcher's English instructor partner; further, the researchers must determine the test and the test criteria before gathering data (Setiyadi, 2006). The first rater is the researcher, and the second rater is the English teacher. To achieve the reliability of the pretest and posttest of the writing test, the first and second raters discussed and considered the writing criteria in order to obtain a reliable test result. In order to find the correlation coefficient between the two raters, the writer used the calculation of the rank-order correlation formula as stated below:

$$p = 1 - \frac{6 \sum d^2}{N(N^2 - 1)}$$

The formula can further be described as follows:

p relates to the coefficient of rank order.

d refers to the difference of rank correlation.

N stands for the number of students.

1-6 is a constant number.

(Hatch and Farhady, 1982)

After finding the coefficient of rank correlation between raters, then researcher analyzed the coefficient of reliability with the standard of reliability testing below:

1. A very high reliability ranging from 0.80 to 1.00.
2. A high reliability ranging from 0.60 to 0.79.
3. A medium reliability ranging from 0.40 to 0.59.
4. A low reliability ranging from 0.20 to 0.39.
5. A very low reliability ranging from 0.00 to 0.19.

After calculating the result of students' procedural writing, the data were calculated by the researcher by using the formula above (*see appendices 7 and 8*). The result of the reliability could be seen in the following tables:

Table 3.3. the Result of Reliability

Reliability	Pre-test	Post-test
	0.94	0.87

Based on the standard of reliability above, the writing test has very high reliability (range between 0.80000 - 1.00000). It can be concluded that there was no subjectivity in scoring students' writing between the researcher and English teacher.

2. Reliability of Questionnaire

Setiyadi (2006) notes that reliability is the consistency of measurement of research, or ability of a measurement to measure the same research subjects in a different time and give the consistent result. A Cronbach Alpha was used to measure the internal consistency of the items of questionnaire. The higher alpha, the more reliable the questionnaire would be (Setiyadi, 2006). The formula for alpha is:

$$\alpha = \frac{nr_{ii}}{1 + (n - 1)r_{ii}}$$

Note:

n = the number of items in the questionnaire

r_{ii} = the average of all the inter-item correlation

(Cohen et al, 2018)

Actually, to find the alpha value can use the formula above or by using SPSS 16. Furthermore, to determine the reliability of the questionnaire, Cohen et al (2018) proving following guideline:

Table 3.4. The Guideline for Describing Alpha Value

Alpha value	Descriptions
> 0.90	Very highly reliable
0.80-0.90	Highly reliable
0.70-0.79	Reliable
0.60-0.69	Minimally reliable
<0.60	Unacceptably low reliability

Table 3.5. Reliability of Questionnaire
Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.85	.122	20

After tabulating the score of the questionnaire, the researcher found that the reliability after being implemented by Process Approach-Based Mind Mapping was 0.85. It meant that the questionnaire had high reliability.

3.6. Research Procedures

In conducting the research, the researcher will use following steps:

The researcher chose SMPN 38 Bandar Lampung as the population of this research and took one class as the sample; it was IX C as experimental class. The instrument of this research was writing tests.

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 the pretest.

After the treatments were conducted, each of the students wrote a procedural text. The students developed the ideas clearly and systematically because they had planned about what they were going to write by using Mind Mapping. Furthermore, the treatments offered students with processes that enabled clear and understandable learning. As a result, the students were able to comprehend the text. Process Approach comprised four stages that encourage students to feel free to express their thoughts into writing messages by giving them several opportunities

First, planning enabled students to think about ideas that might be related to what they wanted to write. It is as stated by Karatay (2015) that planning allows students to concentrate on the thought process, to be aware of each stage, and to create qualified writing products. Planning helped the students to organize their ideas by using Mind Mapping which involved getting all of the main ideas down on a page with keywords based on the topic given by the teacher. The students opined that

planning was more flexible by using it. They did not have to worry about putting the ideas in order; it was more important to get all of their ideas out first. Therefore, in this stage, the students were able to write some words or phrases in their mind mapping.

Henceforth, according to Suyanto (2010), many students find writing difficult, and they find getting started the most difficult part of writing. He said that Mind Mapping reduces the difficulty by giving students an organizing strategy to get them started. In Mind Mapping, ideas are freely associated and written out without pressure. It means that planning by using Mind Mapping really helped the students organize their ideas. After they made the Mind Mapping with some words, they made some sentences which will be arranged into a procedure text.

Second, drafting encouraged students to produce a text by emphasizing ideas development, organization, and elaboration. Bae (2011) noted that while drafting, students focus on writing ideas down on paper without worrying about grammatical or mechanical errors. In this stage, the students turned their sentences or outlined ideas into the first draft of a procedural text. These outlined ideas were formed during the planning and prewriting stages, which are the previous steps in a standard writing process, and it involves generating ideas, general organizing, and outlining.

Third, in the editing stage, the teacher revised the students' work by focusing on the five aspects of writing. It can be called feedback. He also guided and monitored the students related to producing good writing. It is in line with Martinez, Lopez-Diaz, and Perez (2019) who stated that editing focuses on determining the alignment and overall cohesiveness of the content. Students pay great attention to the overall text's content and organization, seeking for cohesion and avoiding specific faults throughout the text. The teacher can also direct students' attention to discuss assignment-specific guidelines. In line with the students' posttest score that improved, it means that teacher's feedback really helped the students to correct their mistakes in writing.

Moreover, it is in accordance with Sermsook, Liamnimitr, and Pochakorn (2017), in their research, they found that teacher's feedback is an effective strategy for assisting lower proficiency or beginner EFL students in overcoming the difficulties of minor grammatical rules in their writing, such as articles and prepositions. 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.

Fourth, the final version was about polishing the text. It was the last stage where the students submit their final drafts to the teacher. The students made sure that their draft should be completed before giving to the teacher. In addition, the students knew the generic structure of procedural text and they were able to put down their ideas.

In order to see the improvement of students' procedural writing, the posttest was conducted in the class after they had given the treatments. The topic and the time allocation were the same as the pre-test. The last is distributing the questionnaire. The purpose was to find out a significant difference of students' writing achievement after being taught by using Process Approach-Based Mind Mapping. The students were asked to answer the twenty statements.

3.7. Data Analysis

As stated in the previous discussion, the steps in data analysis were connected with the research questions. The researcher organized the data of Mean of pre-test and post-test result from experimental class then calculates them by using Paired Sample T-test to find out a significant difference of students' writing achievement after being taught by using Process Approach-Based Mind Mapping which could be used to answer the first research questions.

Moreover, before testing the hypothesis using T-Test, it is necessary to find out whether the data is normally distributed or not. The data was treated by a normality test.

Table 3.6. Normality Test

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest	.222	15	.045	.887	15	.060
Posttest	.155	15	.200*	.924	15	.221

a. Lilliefors Significance Correction

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

From Table 3.7, it can be seen that the value of normality test in the pretest (0.060) and the value of normality test in the posttest (0.221) is higher than 0.05. It could be concluded that H₀ is accepted. In other words, the data of the pretest and the posttest are distributed normally.

To answer the second research question, the researcher calculated all scores of students' writing aspects in the pre-test and post-test in experimental class then found the Mean of the enhancement of each aspect of students' writing. After that, the result of the aspect of students' writing enhanced the most after they had been taught by using Process Approach-Based Mind Mapping could be seen.

To answer the third research question. The perception questionnaire was Likert Scales-based. The writer calculated the response of students in reference to the point of each response. Then, the researcher calculated the data of each step; each step consists of 4 items. After that, the data were analyzed based on the rating scale and ideal score. To find out the rating scale and idea score as stated below:

Ideal Score = Scale x Respondents

Table 3.7. Rating Scale

Scale	Formula
SA	$5 \times 15 = 75$
A	$4 \times 15 = 60$
N	$3 \times 15 = 45$
D	$2 \times 15 = 30$
SD	$1 \times 15 = 15$

Rating scale and the interval can be elaborated as follows:



The criteria are:

Table 3.8. Scoring Criteria of Questionnaire Responses

Score	Scale	Category
61-75	SA	Very positive
46-60	A	Positive
31-45	N	Neutral
15-30	D	Negative
0-14	SD	Very negative

(Source: <https://www.diedit.com/skala-likert/>)

3.8. Hypotheses Testing

Hypothesis testing was done to determine whether or not the proposed hypothesis was accepted. Based on the research questions, two hypotheses are proposed in this study. The hypotheses are analyzed at significance level of under 0.05 in which the hypotheses are approved if $p < \alpha$. It means that the probability of error in hypothesis is only about 5%. The first hypothesis is drawn as follows:

H₁: There is a significant difference of students' writing achievement after being taught by using Process Approach-Based Mind Mapping.

The criteria for accepting the hypothesis is as follows:

H₁ is accepted if the t-value is higher than T-table.

This is the end of the discussion in this chapter. The methods of this research have been discussed systematically.

V. CONCLUSIONS AND SUGGESTIONS

This chapter offers the conclusions of the research findings and suggestions for further researchers.

5.1. Conclusions

The researcher makes the following conclusions based on the discussion of research findings in the previous chapter. Based on the research, it was concluded that:

1. 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 a significant difference 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 $t\text{-value} > t\text{-table}$. 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 helping students organize their work into well-ordered writing starting from pre-writing, planning, drafting, editing, and final version.
2. 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 provides students with an organized direction for writing so that they can compose a good and well-ordered writing.
3. Furthermore, another result showed that students give a positive perception about the implementation of Process Approach-Based Mind Mapping. It is because the students could develop the ideas clearly and systematically because they had planned about what they were going to write. Furthermore, the

treatments offered students with processes that enabled understandable learning.

5.2. Suggestions

Referring to the conclusions above, some suggestions could be listed for English teachers and further researchers:

5.2.1. For the English teachers

It is suggested to apply the Process Approach-Based Mind Mapping in the class to enhance the students' writing ability. By implementing Process Approach Based Mind Mapping, it can create interactive teaching and provide students the opportunity to actively participate, learn, and help each other when learning writing in class. However, the difficulty in implementing Process Approach-Based Mind Mapping is in drawing Mind Mapping prior to writing. As a consequence, the teacher should focus on controlling time and assisting students step by step through the use of clear instructions so that students can draw it properly.

5.2.2. For the further researchers

1. Mind Mapping has its own limitation; thus, in this research, Process Approach was also used to support it. The further researchers can also combine this technique with other approaches or techniques that can cover the disadvantages of Mind Mapping.
2. This research went through five meetings, therefore further researchers should extend the meetings to make the implementation of this technique more effective.
3. This study was conducted at a junior high school level. Therefore, further researchers can try to find out the effect of this technique in different levels of school.

In brief, those are the conclusions of the research findings and suggestions for English teachers who want to try to implement Process Approach-Based Mind

mapping in teaching writing and for further researchers who want to investigate the research about this technique and approach.

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