

**THE COMPARISON OF WRITING ACHIEVEMENT BETWEEN  
THE STUDENTS TAUGHT THROUGH THE COLLABORATIVE  
WRITING STRATEGY BLENDED WITH MIND MAPPING  
AND THOSE THROUGH THE COLLABORATIVE  
WRITING STRATEGY AT MTs NEGERI 2  
BANDAR LAMPUNG**

A Thesis

By

*Restia Apriani*

2023044007



**MASTER IN ENGLISH LANGUAGE TEACHING STUDY PROGRAM  
LANGUAGE AND ARTS EDUCATION DEPARTMENT  
TEACHER TRAINING AND EDUCATION FACULTY  
LAMPUNG UNIVERSITY  
BANDAR LAMPUNG  
2023**

## ABSTRACT

### THE COMPARISON OF WRITING ACHIEVEMENT BETWEEN THE STUDENTS TAUGHT THROUGH THE COLLABORATIVE WRITING STRATEGY BLENDED WITH MIND MAPPING AND THOSE THROUGH THE COLLABORATIVE WRITING STRATEGY AT MTs NEGERI 2 BANDAR LAMPUNG

Restia Apriani

Magister of English Department, Lampung University  
restialiwa@gmail.com

**Abstract.** The aims of this study were to explore i) whether or not there was a statistically significant difference of writing achievement between the students taught through collaborative writing blended with mind mapping and those through collaborative writing strategy, and ii) which aspect of writing had statistically significant improvement between the two classes. There were two classes, experimental and control classes, each of which consisted of 28 students at MTs Negeri 2 Bandar Lampung. The data were collected through the pre and the post tests in the form of essay writing. The gains of writing achievement in terms of mechanic, content, organization, vocabulary, and grammar, and were then compared using Independent T-test. The results showed that there was a statistically significant difference between the experimental and the control classes with the significant level, 0,05. That is, the experimental class had better achievement of writing than the control class. In addition, every single aspect of writing was also significantly different between the two classes. This suggests that collaborative writing blended with mind mapping facilitates the students to improve their writing achievement.

**Keywords:** Collaborative writing, mind mapping, blended learning.

**THE COMPARISON OF WRITING ACHIEVEMENT BETWEEN  
THE STUDENTS TAUGHT THROUGH THE COLLABORATIVE  
WRITING STRATEGY BLENDED WITH MIND MAPPING  
AND THOSE THROUGH THE COLLABORATIVE  
WRITING STRATEGY AT MTs NEGERI 2  
BANDAR LAMPUNG**

By

*Restia Apriani*

A Thesis

Submitted in a Partial Fulfillment of  
The Requirements for S-2 Degree

in

Language and Arts Education Department  
Teacher Training and Education Faculty



**MASTER IN ENGLISH LANGUAGE TEACHING STUDY PROGRAM  
LANGUAGE AND ARTS EDUCATION DEPARTMENT  
TEACHER TRAINING AND EDUCATION FACULTY  
LAMPUNG UNIVERSITY  
BANDAR LAMPUNG  
2023**

Research Title : **THE COMPARISON OF WRITING ACHIEVEMENT BETWEEN THE STUDENTS TAUGHT THROUGH THE COLLABORATIVE WRITING STRATEGY BLENDED WITH MIND MAPPING AND THOSE THROUGH THE COLLABORATIVE WRITING STRATEGY AT MTs NEGERI 2 BANDAR LAMPUNG**

Student's Name : **Restia Apriani**

Student's Number : **2023044007**

Study Program : **Master in English Language Teaching**

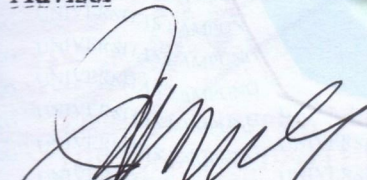
Department : **Language and Arts Education**

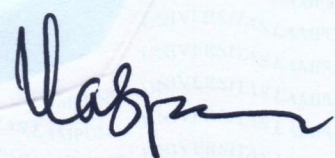
Faculty : **Teacher Training and Education**

**APPROVED BY**  
Advisory Committee

Advisor

Co-Advisor

  
**Prof. Ag. Bambang Setiyadi, M.A., Ph.D.**  
NIP 19590528 198610 1 001

  
**Mahpul, M.A., Ph.D.**  
NIP 19650706 199403 1 002

The Chairperson of Department  
of Language and Arts Education

The Chairperson of Master  
in English Language Teaching

  
**Dr. Sumarti, S.Pd., M.Hum.**  
NIP 19700318 199403 2 002

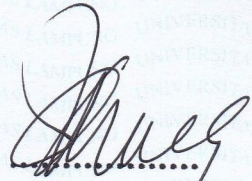
  
**Prof. Dr. Flora, M.Pd.**  
NIP 19600713 198603 2 001



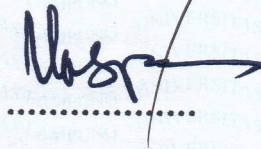
**ADMITTED BY**

**1. Examination  
Committee**

**Chairperson : Prof. Ag. Bambang Setiyadi, M.A., Ph.D.**



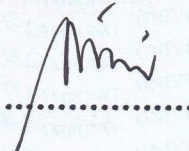
**Secretary : Mahpul, M.A., Ph.D.**



**Examiners : 1. Dr. Muhammad Sukirlan, M.A.**



**2. Dr. Ari Nurweni, M.A.**

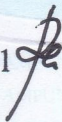


**Dean of Teacher Training and Education Faculty**

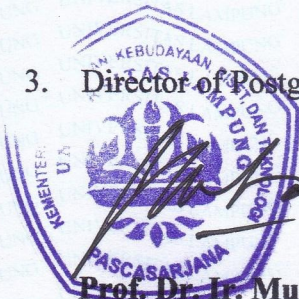


**Prof. Dr. Sunyono, M.Si.**

**NIP 19651230 199111 1 001**



**3. Director of Postgraduate Program**



**Prof. Dr. Ir. Murhadi, M.Si.**

**NIP 19640326 198902 1 001**



**4. Graduated on: June 13<sup>th</sup>, 2023**



## LEMBAR PERNYATAAN

Dengan ini saya menyatakan dengan sebenarnya bahwa:

1. Tesis dengan judul “The Comparison of Writing Achievement Between the Students Taught Through the Collaborative Writing Strategy Blended with Mind Mapping Andthose Through the Collaborative Writing Strategy at MTs Negeri 2 Bandar Lampung” adalah benar hasil karya sendiri dan saya tidak melakukan penjiplakan dan pengutipan atas karya penulis lain dengancara tidak sesuai tata etika ilmiah yang berlaku dalam masyarakat akademik atau yang disebut plagiarism.
2. Hal intelektual atas karya ilmiah ini diserahkan sepenuhnya kepada Universitas Lampung.

Atas pernyataan ini apabila dikemudian hari ditemukan adanya ketidakbenaran, saya bersedia menanggung akibat dan sanksi yang diberikan kepada saya, saya bersedia dan sanggup dituntut sesuai hukum yang berlaku.

Bandar Lampung, 30 Mei 2023  
Yang membuat pernyataan,



Restia Apriani  
NPM. 2023044007

## **CURRICULUM VITAE**

Restia Apriani was born in Gunung Sugih on April 1<sup>st</sup>, 1993. She is the daughter of Mr. Drs. Jon Serigar (the late) and Mrs. Dra. Surmiati. She has one brother, Kurniawan Hamidi, M.Pd., and one sister, Kamilia Rosyidah.

She began her studies at SD Negeri Gunung Sugih, Lampung Barat. After she graduated from elementary school in 2005, she continued her studies at MTs Darussalam Natar and graduated in 2008. Then, she continued her study at MAN 1 (Model) Bandar Lampung. She graduated in 2011. Furthermore, she was accepted the position as a student of the English Education Study Program at IAIN Raden Intan Lampung. She got her bachelor's degree in 2015. Then, she extended her studies for her Master in English Education Study Program at the University of Lampung in 2020.

## **DEDICATION**

The writer dedicates this work to:

1. Her Parents – Drs. Jon Serigar (the late) and Dra. Surmiati
2. Her beloved Husband – Qodri Eka Yunarta, S. Kep
3. Her daughters – Rasyiqa Aida Yunarta and Rayliza Anindita Yunarta
4. Her Brother and sister - Kurniawan Hamidi, M.Pd., and Kamilia Rosyidah
5. Her Almamater – University of Lampung
6. Her Friends in Master of English Education Study Program
7. English Teachers



**MOTTO**

لَا يُكَلِّفُ اللَّهُ نَفْسًا إِلَّا وُسْعَهَا

"Allah will not burden a person but according to his ability."

(QS. Al-Baqarah: 286).

## ACKNOWLEDGEMENTS

Praise is only for Allah SWT, the Almighty God, for blessing the writer with health and the ability to finish this thesis. This thesis, entitled "Comparison of Writing Achievement between the Students Taught Through the Collaborative Writing Strategy Blended with Mind Mapping, is presented to the Language and Arts Education Department of the Teacher Training and Education Faculty of Lampung University as partial fulfillment of the requirements for the S-2 degree. Among the many individuals who gave generous suggestions for improving this thesis, first of all, the writer would like to express her sincere gratitude and respect to:

1. Prof. Ag. Bambang Setiyadi, M.A., Ph.D., as the first advisor, for his patience, encouragement, and who has been willing to spend his time to assist the writer in accomplishing this thesis.
2. Mahpul, M.A, Ph.D., as her second advisor who has contributed and given his endless support, evaluations, comments, suggestions during the completion of this thesis.
3. Dr. Muhammad Sukirlan, M.A., as the first examiner, for his encouragement and contribution during the seminar until this thesis finished.
4. Dr. Ari Nurweni, M.A., as her second examiner, who have given her suggestions and criticism as well as her constructive ideas in improving the content of this paper.

5. My lecturers and administration staffs of English Education Study Program.
6. Special appreciation goes to MTs Negeri 2 Bandar Lampung, especially to Nasron, S.Ag., M.M as the Headmaster of MTs Negeri 2 Bandar Lampung, and the students of class VIIA and VIIB for the cooperation during the research process.
7. My beloved parents, Alm. Drs. Jon Serigar and Dra. Surmiati. Thank for your love, support, prayer, and everything you gave to me all the time.
8. My beloved Husband, Qodri Eka Yunarta, S. Kep., and my daughters, Rasyiqqa Aida Yunarta and Rayliza Anindita Yunarta.
9. My beloved brother, Kurniawan Hamidi, M. Pd., and sister, Kamilia Rosyida, Thank you for your love, advice, support, and prayer.
10. My precious friends in Master Degree of English Department batch 2020. Thank you for the time we had together. I could not find any better friends than you all.

Finally, the writer believes that her 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, 13 Juni 2023  
The Writer

Restia Apriani  
2023044007



## TABLE OF CONTENTS

	Page
<b>ABSTRACT</b> .....	<b>i</b>
<b>COVER</b> .....	<b>ii</b>
<b>APPROVED</b> .....	<b>iii</b>
<b>ADMITTED</b> .....	<b>iv</b>
<b>LEMBAR PERNYATAAN</b> .....	<b>v</b>
<b>CURRICULUM VITAE</b> .....	<b>vi</b>
<b>DEDICATION</b> .....	<b>vii</b>
<b>MOTTO</b> .....	<b>viii</b>
<b>ACKNOWLEDGEMENTS</b> .....	<b>ix</b>
<b>TABLE OF CONTENTS</b> .....	<b>xi</b>
<b>LIST OF TABLES</b> .....	<b>xiv</b>
<b>LIST OF APPENDICES</b> .....	<b>xv</b>
<b>I. INTRODUCTION</b>	
1.1 Background of the Study .....	1
1.2 Formulation of the Problem.....	7
1.3 Objectives of the Research .....	7
1.4 Uses of the Research.....	7
1.5 Scope of the Research.....	8
1.6 Definition of Terms .....	9
<b>II. LITERATURE REVIEW</b>	
2.1 Concept of Writing .....	10
2.1.1 Types of Writing.....	12
2.1.2 Measures of Writing .....	13
2.2 Collaborative Writing Strategy.....	17
2.2.1 Procedures of Teaching Writing through Collaborative Strategy .....	21

2.2.2	Previous Studies of Collaborative Writing.....	24
2.3	Mind Mapping .....	25
2.3.1	Previous Studies of Mind Mapping in Writing .....	29
2.3.2	Blended Mind Mapping and Collaborative Writing.....	31
2.4	Teaching Writing through Collaborative Writing Strategy Blended with Mind Mapping .....	32
2.5	Hypothesis .....	37
<b>III. METHOD.</b>		
3.1	Research Design .....	38
3.2	Instruments .....	39
3.2.1	Writing Test.....	39
3.3	Validity and realibility.....	40
3.3.1	Validity of Writing Tests.....	40
3.3.2	Realibility of Writing Tests .....	41
3.4	Setting of the Research .....	44
3.5	Population and Sample .....	44
3.6	Data Collecting Technique .....	44
3.7	Data Analysis.....	45
3.8	Normality and Homogeneity of the Test .....	46
3.9	Hypothesis Testing .....	49
<b>IV. RESULTS AND DISCUSSIONS.</b>		
4.1	The Difference of Writing Achievement between the Students Taught through Collaborative Writing Blended with Mind Mapping and Those through Collaborative Writing Strategy.....	52
4.2	The Difference of Single Aspect of Writing between the Students Taught through Collaborative Writing Blended with Mind Mapping and Those through Collaborative Writing Strategy.....	55
4.3	Discussions .....	59
4.3.1	Discussion (RQ 1) .....	59
4.3.2	Discussion (RQ 2) .....	63
4.4	Hypothesis Testing .....	65

**V. CONCLUSIONS AND SUGGESSTIONS.**

5.1. Conclusions .....	69
5.2. Suggestion .....	70

**REFERENCES.****APPENDICES.**



## LIST OF TABLES

	Page
Table 1. The criteria of scoring writing .....	14
Table 2. <i>The Advantages and Disadvantages of Collaborative Writing Strategies</i> .....	21
Table 3. Steps of Collaborative Writing .....	23
Table 4. Normality Test for Writing Test of Two Class .....	47
Table 5. Homogeneity of Writing Test for Two Classes .....	48
Table 6. The Comparison between Pre and Post-Tests of the Experimental Class .....	52
Table 7. The Statistical Calculation between the Pre and Post-Tests of the Experimental Class .....	53
Table 8. The Comparison between Pre and Post-Tests of the Collaborative Writing .....	53
Table 9. The Statistical Calculation between the Pre and Post-Tests of the Control Class .....	54
Table 10. The Significant Difference of the Students' Writing Achievement between the Control and Experimental Class .....	55
Table 11. The Difference of Single/Individual Aspect of Writing between Pre and the Post-Tests of Experimental Class .....	56
Table 12. The Difference of Single/Individual Aspect of Writing between Pre and the Post-Tests of Control Class .....	57
Table 13. The Statistical Calculation between the Gains of Single Aspect of Writing between the Experimental and Control Class .....	58

## LIST OF APPENDICES

	Page
Appendix 1 Silabus .....	77
Appendix 2 Lesson Plan original .....	79
Appendix 3 Lesson plan Blended learning .....	85
Appendix 4 Pre and Post-test of Writing .....	91
Appendix 5 Tabulation of Students' Score in Pre-Post-test of Experimental and control Class .....	93
Appendix 6 Score of Pre-Post Test Experimental and control Class from Two Raters .....	101
Appendix 7 Reliability of Students' Score Pre & Post Experimental and control Class.....	105
Appendix 8 Normality Test for Pre-Post Test .....	107
Appendix 9 Homogeneity Test For Pre & Post Test .....	111
Appendix 10 Students' Score Pre & Post Test Experimental and control Class .	112
Appendix 11 Paired Sample Test Class A & B for Each Aspect of Writing .....	118
Appendix 12 Comparing Gains for Each Aspect of Writing .....	128
Appendix 13 Improvement of Aspects in Writing Achievement in Experimental Class .....	133
Appendix 14 Improvement of Aspects in Writing Achievement in Control Class B .....	134
Appendix 15 Paired sample test Collaborative Using Mind Mapping .....	135
Appendix 16 Paired sample test Original CWS.....	138
Appendix 17 Comparing gain of the two classes.....	141

## **I. INTRODUCTION**

This chapter describes the background of the problem which includes the reasons for conducting the research. This chapter also describes the formulation of the study, the purposes of the study, the significance of the study, the scope of the study, and the definition of terms.

### **1.1 Background of the Study**

Students must learn and master the skills of speaking, listening, reading, and writing. Writing is one of the English abilities that students should be able to master since it allows them to communicate their ideas through written language as it is used for letters, essays, papers, articles, journals, project reports, theses, and other forms of academic and professional writing.

Writing is an act that is done by people to show their ideas on paper or other suitable material with a pencil or pen. According to Brown (2007), performance that fit the rules of grammar, its vocabulary, and all the pieces of a language together is actual production (speaking, writing) or the comprehension (listening, reading) of linguistic events. Related to that, Brown (2007) continues to explain that writing skills has progressed to a recognition of the full range of pragmatic and organizational competence that is necessary to write effectively in a second language. It is more than just



picking up a pen and putting words on paper. Writing seems to be a fairly straight forward concept.

Writing has a crucial part in language formation, which is utilized to mediate knowledge globally (Fareed, Ashraf, & Bilal, 2016), it makes writing difficult for most students. There has been research done to look into the writing difficulties of Indonesian EFL students. Rahmatunisa (2014) looked into the difficulties Indonesian EFL students have when writing argumentative essays. The results of this study showed that the EFL students had linguistic, cognitive, and psychological issues. Additionally, Hasan & Marzuki (2017) examined the writing skills of Indonesian EFL students by giving them writing assignments to complete in a predetermined amount of time. Their research revealed that the students' work had grammatical errors related to the usage of plural forms, articles, verb tenses, clauses, passive voice, and prepositions. As a result, the value of writing can be seen in how often it is used in both the workplace and in higher education as revealed in Ariyanti & Fitriana's (2017) research that Indonesian EFL university students struggled to write essays with proper grammar, cohesion, coherence, paragraph organization, diction, and spelling. Writing is the primary form of communication that students' communication with everyone else suffer if they lack the ability to express themselves in writing; the students need help to ease them in expressing their thoughts. The researcher is motivated by this to teach writing to the students, including the steps involved (planning, drafting, rewriting, and producing the final product), as well as some writing-related concepts (content, organization, vocabulary, language, and

mechanics). Contrarily, it is a reality of the teaching and learning process that the majority of students have trouble putting their thoughts, interests, experiences, and feelings into written forms or writing if they do it alone. To get around these issues, students need a partner to share their thoughts with and to correct their writing.

Some techniques can be implemented in writing lessons which can be done individually, in pairs, or in groups to overcome the problems. The Collaborative Writing Strategy (CWS) can be employed in lessons when the teachers are willing to provide their students the chance to collaborate. Collaboration is about people working together to achieve goals (Andersen, 2011). Lowry, et. al. (2004) referred to Collaborative Writing as CW as an iterative and social process that involves a team focused on a common objective that negotiates, coordinates, and communicates during the creation of a common document. To produce high-quality writing is an approach that requires students to work in pairs or groups and allows them to co-write a particular text. Although it has been proven that this method improves students' writing skills, significant attention still needs to be given to writing skill development. Without a doubt, using a collaborative writing strategy is a good start because it provides the scaffolding that is so crucial for enhancing students' writing skills. Sukirman (2016) stated that student can produce a good composition with their collaboration with their peers. It is a teaching strategy whereby collaboration means the sharing of labour (co-labour) and thus collaborative writing, or co-authoring of a text by two or more writers (Storch, 2013). It is a cooperative and social process when a group of

individuals negotiates, coordinates, and communicates to achieve a shared objective. A collaborative writing strategy must go beyond plans for what writers, or others contributing to the development of information, are expected to do; the strategy must also include plans for how writers enabled to successfully achieve business goals (Andersen, 2011). In addition to the teaching methods, psychological factors or attributes like creativity, self-esteem, and Intelligence may also have an impact on students' writing ability. In line with the justification, using this method might enable students of all skill levels to collaborate on a writing project. Students' writing skills improved if this strategy is applied in the classroom, making it effective in a variety of ways.

Numerous types of research have been conducted using Collaborative Writing Strategy. According to Abbas, et al. (2018), using a collaborative writing strategy can solve the students' problem in writing argumentative essays. In other words, incorporating a collaborative writing method into the instruction on how to write an argumentative essay help students become better writers. Montserrat et al. (2015) discovered that the importance of a structured context of learning to promote critical thinking through writing is discussed as well as the need to train students to develop efficient peer discussion for learning through collaborative writing. Deasy (2019) has also conducted a study on the Collaborative Writing Strategy, with the results showing that the students had better achievement in writing descriptive text. As a result, a collaborative writing strategy is one of the best ways to teach writing to children while simultaneously enhancing their motivation, self-

confidence, critical thinking, and other abilities in pair or group conversations. Therefore, by collaborating with their classmates, students can create high-quality pieces.

Learning to write well is not as simple as writing or typing one letter to numerous words (without any sense) in a medium. We must be familiar with writing's unique rules (such as punctuation and paragraph constructions) to produce writing that is relevant and useful. Additionally, depending on the type of writing, different kinds of abilities are needed (McKay, 2008). The writer must be able to commit to writing thoughts, ideas, and opinions that need to be expressed. Therefore, there are some things to keep in mind when writing. Thus, using mind mapping can help the students begin to write well since mind maps not only emphasize crucial information in the mind but also display a subject's overall organization and the relative importance of its various components on paper.

A mind map is the easiest way to put information into your brain and to take information out of your brain, it is a creative and effective means of note-taking that literally '*maps out*' your thoughts (Buzan, 2005). Mind mapping is a creative note-taking technique that uses visualization and graphic elements to help people easily enter information into their brains, keep it in their long-term memory, and remove it from their brains by using their imaginations and associative thinking. It can be used as a teaching tool, a tool for planning and reviewing lectures, and the technique make it possible to write and review notes fast. Most importantly, it makes possible for

knowledge to be rapidly updated. The use of mind maps can be applied in a variety of contexts, such as problem-based learning, small-group teaching, one-on-one settings, as an exam aid, and for self-review.

Different barriers to collaboration require different solutions. To overcome the collaboration barrier in collaborative writing strategy, grouping students as the “enablers” lever, which seemed absent from much research that is reviewed on collaboration and collaborative writing can facilitate interaction and encourage discussion (Andersen, 2011). One type of enabler is the ‘Guides’ where team members need direction—guides such as process scripts, vision statements, meeting agendas, style guides, and who’s who maps or diagrams help equip team members for successful collaboration. Combining mind map knowledge with others, it is further the associations that it is beneficial to work with others during problem-solving tasks.

Based on the previous claim, the researcher attempts to incorporate the collaborative writing method through mind mapping to determine the impact of both on students' writing achievement and understanding of the process of generating descriptive text that according to Grgurovic (2011) all language skills can be successfully integrated into blended learning.

## **1.2 Formulation of the Problem**

Based on the limitation above, the researcher formulated the following question:

1. Was there the statistically significant difference of writing achievement between the students taught through collaborative writing blended with mind mapping and those through collaborative writing strategy?
2. Which aspect of writing was significantly different between the two classes?

## **1.3 Objectives of the Research**

Concerning the statement of the problem above, the objectives of this research are determined as follows:

1. To find out the statistically significant difference of writing achievement between the students taught through collaborative writing blended with mind mapping and those through collaborative writing strategy.
2. To find out which aspect of writing was significantly different between the two classes.

## **1.4 Uses of the Research**

Under the objectives, these uses are:

1. Theoretically

This research is expected to clarify or support previous research findings in the implementation of a collaborative writing strategy to teach descriptive paragraphs.



## 2. Practically

### a. The students

It is hoped that the student's writing skills and activities can be improved by employing the collaborative writing strategy.

### b. The Teacher

It is useful for English teachers to improve and to focus their teaching strategy on writing so that the students can comprehend the materials and get involved in the teaching and learning process, especially in writing activities.

### c. The Reader

It gives some information to the reader about teaching writing in the teaching and learning process.

### d. The Researcher

It gives more experience and knowledge of teaching and learning.

## **1.5 Scope of the Research**

This study was taken at MTs Negeri 2 Bandar Lampung during the academic year 2022–2023. Next, the research-related material that the students utilized was descriptive text. Additionally, a collaborative writing strategy was used as a teaching strategy for them, and the learning took place in the classroom as well as an image recording as a tool to collect the real data.

## 1.6 Definition of Terms

To avoid misunderstanding, the following terms defined as follows:

### 1. Writing

The ability to communicate in writing and articulate ideas, thoughts, and feelings is referred to as writing ability. Writing ability refers to the student's capacity to express ideas and thoughts through the appropriate use of writing in a paragraph or text.

### 2. Collaborative Writing Strategy

According to the background information provided for the issue, collaborative writing is a teaching writing approach in which students are required to collaborate in pairs or groups to generate quality writing. With the help of this tactic, students can produce a specific text with their classmates. To put it another way, the students collaborate to write well.

### 3. Mind Mapping

Mind mapping is a technique used to increase memory and understand concepts, ideas, key terms, and information. It is a process of using a visual map which contains a main idea that branches out into related and important information pertaining to that main topic.

## **II. LITERATURE REVIEW**

This chapter explains about concept of writing (definition), collaborative writing strategy (including procedure), mind mapping (procedure), blended learning, and hypotheses.

### **2.1 Concept of Writing**

Writing is generally perceived as a solitary, individual activity, according to Storch (2013). The students consider several possibilities to construct a theme that they can proceed to compose as a sentence or a paragraph with their collection of supporting details once they have a topic. Writing is a tool of learning content material rather than an end in itself, claim Graham and Perin (2007). In line with this, Graham (2019) adds that writing is a fundamental skill to learn new ideas, persuade others, record information, create imaginary worlds, express feelings, entertain others, heal psychological wounds, chronicle experiences, and explore the meaning of events and situations. This statement implies that writers can use their own words to put their thoughts or feelings into written form. Each paragraph should have a topic phrase that develops the ideas and emotions. Each theme sentence then evolved into a supporting sentence, completing the composition of the text.

People can communicate with others who are distant from them in both time and space by writing. Larger groups of individuals may feel more of a sense of history and purpose as a result. Writing allows people to express ideas, messages, and opinions while also enabling long-distance communication.

In writing, we need to use the right words and phrases and adhere to the ideal format. Writing is the act of communicating thoughts that have been correctly put into words and sentences. According to Pucell, et. al (2013), the research findings showed that many of the teachers expressed the belief that teaching writing is less about the actual writing mechanics and more about the students' ability to think critically. A writer needs to be able to think about and come up with ideas for the subject she is going to write about during the writing process. To produce a quality piece of writing, the writer must also be able to arrange their thoughts.

Writing may be summed up as a process for communicating ideas and thinking through written form. It is asserted that different writers have various definitions or perspectives on what constitutes writing. Writing is a technique for the writer to convey and clarify concepts to the reader. In creating well-written content that the reader can easily grasp, the writer must be able to organize their thoughts or ideas into effective paragraph structure as they are writing. Effective communication requires effective writing abilities. Your readers understand you more readily the better you write. Writing properly requires patience and practice.

### **2.1.1 Types of Writing**

Lowry et al. (2004) recommend five different types of collaborative writing processes. First, group single-author writing that entails planning, composing, and reviewing done by one person. Collaborative writing requires them to work together for a coordinated consensus that is reflected in a document created by one of the team members. It happens when one team member writes on behalf of the entire team. If the writing assignment is straightforward, this type of writing is used. Second, sequential single-author writing is when only one member of the group writes at a time. Each group member is given a section of the document to write, and after finishing, they deliver the manuscript to the following person. The third type of writing is parallel writing, which takes place when a group divides a task or document into distinct pieces and has each member work on their respective component simultaneously. There are two types of parallel writing: horizontal division, in which group members divide the assignment into sections where each is responsible for the progress of the section which has been allocated, and stratified division, which allows for parallel writing. Parallel writing is used when group members designate different people with different responsibilities during the product's creation. Author, editor, facilitator, and team leader are a few examples of the duties that a participant might be given. The fourth type of writing is reactive writing, which happens

when team members work synchronously to create a product. As contributions are made, team members respond to them and modify them as necessary. The final collaborative writing strategy is known as mixed mode, and it involves combining two or more of the other mentioned styles.

To sum up, the collaborative writing procedure used by the researcher is single-author writing in which one student in the peer writes as a representative for the entire team.

### **2.1.2 Measures of Writing**

It is important to measure writing instruction to gauge students' writing proficiency. A writing skill-learning method can be evaluated through an exercise to determine its effectiveness. The categories to measure writing, are:

1. Content. It includes a thesis statement, linked concepts, development of ideas, and development of ideas using examples from one's own life, examples from the literature, facts, and views.
2. Organization. The efficiency of the introduction, the coherence of the concepts in the body, the conclusion, and the correct length are all included.
3. Vocabulary.
4. Syntax.



5. Mechanics. Included are proper grammar, spelling, and reference citations, as well as presentational neatness.

Table 1. The criteria of scoring writing

<b>Aspect</b>	<b>Level</b>	<b>Score</b>	<b>Criteria</b>
<b>Content</b>	<b>Excellent to good</b>	20-18	Essay addresses the assigned topic, the ideas are concrete and thoroughly developed, no extraneous material essay reflect thought
	<b>Good to adequate</b>	17-15	Essay addresses the issues but misses some points, ideas could be more fully developed some extraneous material is present.
	<b>Adequate to fair</b>	14-12	Development of ideas not complete or essay is somewhat off the topic paragraphs aren't divided exactly right
	<b>Unacceptable-not</b>	11-6	Ideas complete, essay does not reflect careful thinking or was hurriedly written ,inadequate effort in area of content
	<b>College-level work</b>	5-1	Essay is completely inadequate and does not reflect college-level work, no apparent effort to consider the topic carefully
<b>Organization</b>	<b>Excellent to good</b>	20-18	Appropriate title, effective introductory paragraph, topic is stated, leads to body, transitional expressions used, arrangement of material shows plan, supporting evidence given for generalization, conclusion logical and complete.

	<b>Good to adequate</b>	17-15	Adequate title, introduction and conclusion, body of essay is acceptable, but some evidence may be lacking, some ideas aren't fully developed, sequence is logical but transitional expressions may be absent or missed
	<b>Adequate to fair</b>	14-12	mediocre or scant introduction or conclusion, problems with the order of ideas in body, the generalizations may not be fully supported by the evidence given problems of organization interfere
	<b>Unacceptable-not</b>	11-6	Shaky or minimally recognizable introduction, organization can barely be seen severe problems with ordering of ideas, lack of supporting evidence, conclusion weak or logical; inadequate effort at organization.
	<b>College-level work</b>	5-1	Absence of introduction or conclusion no apparent organization of body, severe lack of supporting evidence, writer has not made any effort to organize the composition
<b>Vocabulary</b>	<b>Excellent to good</b>	20-18	Precise vocabulary usage use of parallel structures, concise, register good
	<b>Good to adequate</b>	17-15	Attempts variety, good vocabulary, not wordy, register OK, style fairly concise
	<b>Adequate to fair</b>	14-12	Some vocabulary missused, lacks awareness of register may be too wordy
	<b>Unacceptable-</b>	11-6	Poor expression of ideas, problems in vocabulary, lacks variety of structure

	<b>not</b>		
	<b>College- level work</b>	5-1	Inappropriate use off vocabulary no concept of register or sentence variety.
<b>Syntax</b>	<b>Excellent to good</b>	20-18	Native like fluency in English grammar, correct use of relative clause, prepositions, modals, articles, verb forms and tense sequencing, no fragments or run-on sentence
	<b>Good to adequate</b>	17-15	Advanced proficiency in English Grammar, some grammar problems don't influence communication, although the reader is aware of them no fragments or run-on sentence
	<b>Adequate to fair</b>	14-12	Ideas are getting through to the reader but grammar problems are apparent and have a negative effect on communication, run on sentences or fragments present.
	<b>Unacceptable- not</b>	11-6	Numerous serious grammar problems interfere with communication of the writer's ideas grammar review of some areas clearly needed, difficult to read sentence
	<b>College- level work</b>	5-1	Severe grammar problems interfere greatly with the message reader can't understand what the writer was trying to say, unintelligible sentence structure
<b>Mechanics</b>	<b>Excellent to good</b>	20-18	Correct use of English writing conventions, left and right margins,, all needed capitals, paragraphs indented, punctuation and spelling, very neat

	<b>Good to adequate</b>	17-15	Some problems with writing conventions or punctuation, occasional spelling errors, left margin correct, paper is neat and legible
	<b>Adequate to fair</b>	14-12	Uses general writing conventions but has errors, spelling problems distract reader, punctuation errors interfere with ideas
	<b>Unacceptable-not</b>	11-6	serious problems with format of paper, parts of essay not legible, errors in sentence punctuation and final punctuation, unacceptable to educated readers
	<b>College-level work</b>	5-1	Complete disregard for english writing convention, paper illegible, obvious capitals missing, no margins, severe spelling problems

## 2.2 Collaborative Writing Strategy

According to Alamargot & Chanquoy (2001), writing a text is a complex task that needs a coordinated implementation of a large set of mental activities. Common people acquire linguistic skills both physically and psychologically. Writing, Alamargot & Chanquoy (2001) continue, have to be established as a precise representation about readers' characteristics and expectations, in order to anticipate systematically what must, or can, be written. The text topic should be controlled as to generate or to specify the most relevant ideas that will progressively constitute the text content. In addition, the message must be clarified, re-organized, modified and articulated, while controlling the whole text coherence. It indicates that someone can convey ideas and senses more accurately through written forms.

Writing is a complex and challenging task, requiring a considerable amount of instructional time to master (Graham, 2019). The composition of the classroom is also a contributing factor in how writing is taught (Graham, 2019). It may be argued that writers must learn the purposes and features of different types of texts (Graham, 2019). Besides that, Alamargot & Chanquay (2001) adds that to choose the 'appropriate words' for each idea, to use very strict syntactic, grammatical and orthographic rules, to use correct punctuation and connection marks, in order to translate, in terms of linguistic relations, the semantic relationships linking these ideas is still not sufficient to elaborate a text. In conclusion, the collaborative writing technique encompasses the entire previously discussed procedure.

For English language learners with varying levels of ability, including those who have learning difficulties, collaborative writing is an iterative and social process that involves a team focused on a common objective that negotiates, coordinates, and communicates during the creation of a common document (Lingard, 2021). It provides a real-world learning setting where students can hone their analytical and deliberative abilities to their writing abilities. When numerous people work together (collaboratively) to produce written works rather than doing so alone, this is referred to as collaborative writing. Additionally, Lingard (2021) contends that the collaborative writing activities are dynamic and iterative that being involved in collaborative writing can help to identify and resolve such disparate orientations to the work.

Collaboration is the strategy must also include plans for how writers will be enabled to successfully achieve business goals (Andersen, 2011). It suggests that the concept of collaborative writing involves students producing formal papers in pairs or groups so they can develop descriptive language collectively rather than individually. Collaboration in writing provides for the practice of writing academic papers and evaluations of literature as well as the promotion of introspection, knowledge exchange, and critical thinking (Sukirman, 2016). By adopting the collaborative writing method, which is a writing teaching strategy, students working in pairs or groups can generate good writing on their own. This approach enables students to write with their peers about the importance of collaboration for producing high-quality learning. Collaborative writing requires students not only to practice literature review, academic reading and writing, but also group reflection, collaboration, knowledge sharing, and critical thinking.

According to Storch (2013) a collaborative writing strategy is one of the most effective ways to teach writing to students while also boosting their motivation, self-assurance, critical thinking, and other skills through pair or group discussions. When encountering a problem, learners writing in pairs or small group no longer need to rely on their own linguistic resources to solve the problem. They can draw on the knowledge of others, that when interacting with others, they are exposed to a range of viewpoints. Collaborative writing is a useful educational strategy in language lessons to



enhance learning chances. Through group writing, students have several chances to demonstrate their knowledge of the language.

Then, Graham and Perin (2007) make the point that collaborative writing involves developing instructional arrangements whereby adolescents work together to plan, draft, revise, and edit their compositions. It shows a strong impact on improving the quality of students' writing. These statements demonstrate how collaborative writing enables students to complete all writing processes, including pre-writing, drafting, revising, and editing. Thus, by collaborating with their peers, students can develop a quality piece.

The benefits of collaborative writing that several specialists in the field of writing instruction as cited in Lowry, et, al (2004) have suggested these advantages include maximum input, a range of viewpoints, checks and balances, experience, shared knowledge, writing expertise, accuracy, more understandable documents, learning, socialization, and higher document quality. Because of its many potential advantages, collaborative writing is an effective method of group work.

The benefits gained of collaborative writing according to Fong (2012) are heightening their sense of responsibility towards the task, promoting the sharing of new information, allowing the sharing of expertise, helping narrow down information, and negotiating successfully by using Facebook as a

means to continue their discussion on matters which they had difficulty in resolving through face-to-face interactions.

On the other hand, collaborative writing also has some disadvantages, as listed in the table below.

**Table 2.** *The Advantages and Disadvantages of Collaborative Writing Strategies*

Writing Strategy	Advantages	Disadvantages
Single-author Writing	Efficient and Style consistency	May not clearly represent group's intentions and less consensus produced
Sequential single Writing	Easy to organize and simplifies planning	Lose sense of group, subsequent writers may invalidate previous work, lack of consensus, version control problems, inefficient, and one person bottlenecks
Parallel writing – horizontal division	Efficient and high volume of output	Writers can be blind to each other's work, redundant work can be produced if poorly planned, stylistic differences, potential information overload, and does not recognize individual talent differences well
Parallel writing Stratification	Efficient, high volume of quality output, less redundancy, and better use of individual talent	Writers can be blind to each other's work, redundant work can be produced if poorly planned, stylistic differences, and potential information overload
Reactive writing	Can build writing creativity and consensus	Extremely difficult to coordinate, problems with version control, and most software does not effectively support this strategy

### 2.2.1 Procedures of Teaching Writing through Collaborative Strategy

Collaborative writing, according to Storch (2013), is a distinct process and product. The process is where participants working together and interacting throughout the writing process, contributing

to the planning, generation of ideas, deliberations of about the text structure, editing and revision. The text produced is jointly owned, with all writers sharing in the ownership of the text produced. In addition to improving their writing abilities, students who participate in collaborative writing also improve their ability to think critically and make decisions. It was thought that group writing would encourage students to participate more in writing assignments and make it easier for them to understand the passages. Since the students frequently collaborate with writing teams to gain the knowledge needed for future work, it can help to lessen their weaknesses and boost their strengths. To produce quality writing, students are asked to collaborate in pairs or groups using the collaborative writing technique. With the help of this tactic, students can produce a specific text with their classmates. To put it another way, the students collaborate to write well. In addition to providing opportunities to practice academic reading, writing, and literary reviews, collaborative writing also fosters reflection, knowledge sharing, and critical thinking (Sukirman, 2016).

The table below shows the steps in the original collaborative writing and the steps of collaborative writing using the mind mapping strategy. The original is adopted from Elizabeth F. Barkley, K. Patricia Cross, and Claire Howell Major. The collaborative learning technique shows several procedures that should be done to

implement a collaborative writing strategy in teaching writing are as follows.

**Table 3.** Steps of Collaborative Writing

Collaborative Writing Strategy	Collaborative Writing using Mind Mapping Strategy
<p style="text-align: center;"><b>Pre-Activity</b></p> <p><b>Pre-Writing</b></p> <ol style="list-style-type: none"> <li>1. Teacher divides the students into pairs or triads</li> <li>2. Teacher asks the students to write a text based on the topic</li> </ol>	<p style="text-align: center;"><b>Pre-Activity</b></p> <p><b>Pre-Writing</b></p> <ol style="list-style-type: none"> <li>1. The students are provided with a picture of an animal, e.g., a cat.</li> <li>2. They are working on a mind mapping, guided by questions about the animal, e.g., <ul style="list-style-type: none"> <li>- What is the name of the animal?</li> <li>- What sorts of food does it usually have?</li> <li>- Where does it usually live?</li> <li>- What does it look like, i.e., the color of its fur, the number of legs, eye and ear shapes, tail, etc?</li> </ul> </li> <li>3. They are guided by the teacher to develop the mind mapping into a descriptive paragraph with respect to content, organization, vocabulary, language use, and mechanics.</li> </ol>
<p style="text-align: center;"><b>Whilst-Activity</b></p> <p><b>Drafting</b></p> <ol style="list-style-type: none"> <li>1. Students organize their ideas and create an outline</li> <li>2. Students selecting parts of the selections for each student to write initial drafts individually</li> <li>3. Team combine individual sections into a single paper</li> </ol>	<p style="text-align: center;"><b>Whilst-Activity</b></p> <p><b>Planning</b></p> <ol style="list-style-type: none"> <li>1. The students work in a group of three or four and they are provided with another animal or a thing.</li> <li>2. They are asked to make a mind mapping of the animal provided.</li> </ol> <p><b>Drafting</b></p> <ol style="list-style-type: none"> <li>1. Every single group is to develop the mind mapping into a descriptive paragraph.</li> <li>2. The teacher monitors the students in the process of writing a descriptive paragraph.</li> </ol> <p><b>Revising</b></p> <ol style="list-style-type: none"> <li>1. The paragraph is exchanged to another group for editing in terms of content, organization, vocabulary, language use, and mechanics.</li> <li>2. The revised version of writing is then submitted to the teacher.</li> </ol>

<p><b>Revising</b></p> <ol style="list-style-type: none"> <li>1. Team revises and edits their work, checking for content and clarity as well as grammar, spelling and punctuation</li> </ol>	<p><b>Final Work</b></p> <ol style="list-style-type: none"> <li>1. Students submit their final work</li> </ol>
<p><b>Post-Activity</b></p> <ol style="list-style-type: none"> <li>1. After the final edit, teams submit their paper to the teacher for assessment and evaluation</li> </ol>	<p><b>Post-Activity</b></p> <ol style="list-style-type: none"> <li>1. The teacher and students discuss the students' difficulties of making a mind mapping, and developing it into a paragraph.</li> <li>2. The teacher discusses the errors the students made in their writing regarding the aspects of writing, i.e., content, organization, vocabulary, language use, and mechanics.</li> <li>3. The students are provided with another animal or thing and they are to make a mind mapping of the animal and develop it individually into a paragraph (home work).</li> </ol>

As may be inferred from the procedures, a collaborative writing strategy is a writing technique in which students work in groups to finish an assignment. Prewriting, drafting, revising, and appreciating were the processes used. The difference in the steps of collaborative writing using mind mapping can be seen clearly in the table.

### 2.2.2 Previous Studies of Collaborative Writing

Here are some studies related to collaborative writing. Latifah et al (2020), conducted a research with the title of the study is “The Effectiveness of Using Collaborative Writing Strategy for Writing Ability of Senior High School Students”. The finally outlined that the collaborative writing approach appears to be more effective than traditional method in teaching literacy that the students were more

attractive in the class to answer the question that was given by researcher. Another research done by Harlena et. al (2019) the results showed that the mean score of the students' writing who were taught by using collaborative writing strategy in experimental class was higher than the mean score of the students writing who were taught by using listing strategy in control class. The strategy gives students a good way to explore their writing skill, and it engages the students actively in some activities during teaching writing. The research done by Pham (2021) also reveals that collaborative writing had great effects on students' writing fluency in both collaboratively written papers and individually written papers. Also, the study invented an efficient framework for collaborative writing activities that the students are benefited from these collaborative activities. They contributed more good ideas for the essay; they could learn the writing styles from each other, making their writing better.

### **2.3 Mind Mapping**

Mind mapping is a form of radiant thinking and thus a typical operation of the human mind. According to Buzan (1993), applying radiant thinking to the brain enables us to range more freely among the major intellectual activities of making choices, remembering, and creative thinking. A universal key to releasing the brain's potential is provided by this graphic method. Every area of life where better understanding and clarity of thought can increase human performance can benefit from the use of a

mind map. Since a mind map does not generate the "semi-hypnotic trance" condition that other note-taking techniques do, according to Buzan, it is a far superior way of taking notes. Mind mapping according to Buzan also balances the brain, makes use of all of the left and right human cortical abilities, unlocks the legendary 99% of your untapped mental capacity, and fosters intuition (which he calls "super logic"). To be able to draw connections between ideas and determine the text's primary or large idea, as well as to determine the precise facts and be able to remember them, it is necessary to take the keywords and connect one keyword to another keyword.

According to the definition, mind maps is a visual way to take notes. Their visual nature, which frequently uses colour and symbols, makes it easier to discern between words or thoughts. In most cases, concepts are organized in a hierarchical or tree-branch manner, with branches leading to sub-branches. When noting thoughts and facts, mind maps encourage more creativity and enable the note-taker to connect words with pictures. The main distinction between mind maps and concept maps is that the former concentrate on a single word or idea while the latter link several.

For instance, while listening to a lecture, one could make notes using mind maps for the essential concepts or words. Mind maps can be used to organize a complex topic or as a mnemonic device. In color-pen creation sessions, mind maps are often recommended as a technique to facilitate

collaboration. Here are some possible uses for mind mapping; problem-solving, outline/framework design, anonymous collaboration, combining words and images, individual inventiveness expressed, simplifying information into a clear and memorable manner, a team-building or collaboration-fostering exercise, and increasing employee morale.

According to Buzan (2005), there are seven processes involved in creating a mind map. The following is an explanation of the seven steps.

1. Start the mind map in the center of a sheet of blank paper. It enables our minds to wander freely in all directions. The goal is to make it easier for us to express our ideas naturally and openly.
2. Use images or photos to illustrate your main point. A picture or photo can spark our thoughts, and it contains a myriad of interpretations. Because it keeps us focused and concrete, a broad image is more interesting. Additionally, he claims that a broad picture might stimulate our brains.
3. Use color to make your mind map more vibrant and imaginative because the color is just as fascinating as a picture. The use of color helps stimulate our brains to think creatively.
4. We need to make the branches of the mind map after creating the vibrant image in its core. We must make sure to group the branches using various colors and sort them according to order. To make it easier for us to locate the categories of the branches by grouping.



5. For each branch, create warped lines. Warped lines are more useful than straight lines because the former tends to dull our brains. More striking is the crooked line that joins the branches.
6. Include essential phrases in each branch. Every single word or image acts as a multiplier, creating its connection to the subject of the writing.
7. When there is a desire to draw a picture at a particular branch, keep sketching pictures. One's map is more effective if additional images are included. A mind is naturally form associations, which is a part of how we learn. The following stage of the writing process can be launched using a significant quantity of information from this.

A crucial component of brainstorming is mind mapping. Many experts support the benefits of mind mapping. The following list includes some advantages of mind mapping.

According to Buzan (1993), mind mapping has several advantages in addition to aiding with concept organization.

These advantages include;

- a. Time saved by noting only relevant words: between 50 & 95%.
- b. Time saved by reading only relevant words: more than 90% of total.
- c. Time saved reviewing mind map notes: more than 90% of total.
- d. Time saved by not having to search for key words amongst unnecessary verbiage: more than 90% of total.
- e. Concentration on real issues enhanced.

- f. Essential key words made easily discernible.
- g. Essential key words juxtaposed in time and space, thus improving creativity and recall.
- h. Clear and appropriate associations made between key words.
- i. The brain finds it easier to accept and remember visually stimulating, multi-colored, multi-dimensional mind maps, rather than monotonous, boring linear notes.
- j. While mind mapping, one is constantly on the verge of new discoveries and new realizations. This encourages a continuous and potentially endless flow of thought.
- k. The mind map works in harmony with the brain natural's desire for completion or wholeness.
- l. By constantly utilizing all its cortical skills, the brain becomes increasingly alert and receptive.

### **2.3.1 Previous Studies of Mind Mapping in Writing**

Here are some studies related to mind mapping.

A research done by Bukhari (2016) reveals 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. Another research by Kamli (2019) is done to investigate the effect of using this mind mapping strategy as a pre-

writing strategy to enhance female language learners' writing achievement and their attitudes towards writing in English at Taif University, Saudi Arabia. The findings are; first, there exists differences between the mean scores of the experimental and the control group on the post-tests of the students' writing achievement and writing attitudes, in favor of the experimental group; second there exists significant differences between the mean scores of the experimental group's pre- and post-tests in writing achievement and writing attitudes, in favor of the post-test; third, students' difficulties to write in English include lack of vocabulary, organization, spelling and grammar; fourth, students are accustomed to memorizing, practicing, and self-correcting, which indicates they are not used to planning their writing; finally, students also positively perceived the strategy of mind mapping and thought it helped them to better write in English. Last but not least, a research done by Naibaho (2022). It is found in his research that mind maps are one of the learning alternatives that teachers can use in teaching essay lessons. The study's findings prove that the mind map is an important teaching material for students. Research also proves that visual teaching materials make it easier for students to remember important ideas and make it easier for students to describe them.

### 2.3.2 Blended Mind Mapping and Collaborative Writing

Singh and Reed (2001) a learning program where more than one delivery mode is being used with the objective of optimizing the learning outcome and cost of program delivery. It is believed that this activity will encourage critical thinking and boost creativity in students' knowledge organization through collaborative mind mapping, an activity carried out by multiple people to share and express their ideas in order to produce a good paragraph. Learners are better equipped to participate in the composing process with greater clarity and understanding when they work together to create and communicate meaning.

There are several studies about collaborative writing using mind mapping. Kurniawan, et. al (2019) believes that the implementation of collaborative mind mapping does improve the student's competence in writing with the help of giving excessive vocabulary from reading a passage, and feedbacks from the researcher. Sijono (2018) presented a study that *the collaborative mind mapping technique could make the students enjoyed the writing activity and generated the students' motivation to get involved in the writing process. The students were happy worked collaboratively with other student; moreover, the students could share their difficulties among the activity. Mind mapping collaborative writing could help the students to improve their writing descriptive texts and motivate the*

*students to be active in the writing activity. Mind mapping collaborative writing is suggested to use in teaching writing at any level of the students and for any kind of texts.*

#### **2.4 Teaching Writing through Collaborative Writing Strategy Blended with Mind Mapping**

Criticism of what students have written is necessary for students to recognize their mistakes since they cannot develop their language and writing skills without adequate and pertinent feedback. For feedback or correction on their writing that students can use individually, in pairs, or groups, students can work with a peer, the teacher, or another student to help them detect their errors.

Sometimes, change requires leaders to recognize that different barriers to collaboration require different solutions. To overcome collaboration barrier in collaborative writing strategy, grouping students as the “enablers” lever, which seemed absent from much research that is reviewed on collaboration and collaborative writing can facilitate interaction and encourage discussion (Andersen, 2011). Enablers, such as process scripts and interactive web conference software, keep everyone focused on the task at hand, and they help team members know who is doing what, when, how, where, and why. Particularly effective enabler for teams is a knowledge base—a centralized, open access repository of all of the resources teams need for effective collaboration. One type of enabler is the ‘Guides’, where team members need

direction—guides such as process scripts, vision statements, meeting agendas, style guides, and who's who maps or diagrams help equip team members for successful collaboration. Combining mind map knowledge with others, it is further the associations that it is beneficial to work with others during problem-solving tasks.

The writing activity starts with planning, writing the draft, revising, and editing an article (Abbas & Herdy 2018). Collaborative Writing Strategy is a strategy where students write together in pairs consisting of a helper and writer. Helper is expected to help the writer in solving the problems they face in writing. The first step is coming up with ideas. The students are instructed to come up with as many suggestions as possible for the lecturer's topic or example image in this step. Drafting is the next step. At this stage, the students are required to draft the topic they have been given, which is based on previously created ideas. Revision and editing come in third. The writer asks the helper to edit the draft at this stage, and then the writer rewrites the edited ideas to create a well-written article. The revised draft is then edited jointly by the writer and the assistant. The editing procedure is concerned with the usage of grammar, vocabulary, or writing mechanics. Publishing comes as the last step. The students present their writing in front of the class in this step. The professor then requests input from additional students by asking them to review the writing's outcomes. Following that, the instructor grades the students' work.

Rahayu (2016) underlined that in collaborative writing, students can easily develop the idea and take a review or argument from another. In addition to improving their writing abilities, students who participate in collaborative writing also improve their ability to think critically and make decisions that writing in groups fosters introspection, information sharing, and critical thinking in addition to providing opportunities to practice literature reviews and scholarly writing (Sukirman, 2016).

In the step of Collaborative Writing, students need to write an outline for the topic they were given, which was derived from previously created ideas. In this step, students are free to generate as many ideas as students can. A mind map can be used as a mnemonic technique or to sort out a complicated idea, rather than just outlining freely. To use mind mapping, readers need to take the keywords from the text and connect them to other keywords to connect one idea to another and determine the main idea or big idea of the text as well as to determine the specific information and be able to remember the information.

In line with the statement above, Buzan (2005) also stated that Mind Map is primarily composed of colors, lines, and words. We can make it better by adding to it the important brain ingredients of pictures and images from your imagination. 'A picture is worth a thousand words' and therefore saves you a lot of time and wasted energy writing down those thousand words in your notes. And it is easier to remember. Mind maps are key to unlocking facts,

ideas, and information and releasing the true potential of your mind. Mind Mapping is used to generate, visualize, structure, and classify ideas and is an aid in the study and problem-solving decision-making.

The following research finding demonstrates the value of using mind maps when writing. First is the research from Pamungkas (2012). The results of this study showed that the use of the mind mapping was effective to improve the students' writing skill. The use of colorful pictures of mind mapping in the stages was effective to make the students more enthusiastic in the writing activities. All students could understand and respond to the researcher' instruction and explanations. The activities for using the mind mapping as a pre-writing planning strategy were successful to help the students generate or organize their ideas. They could also use the appropriate words they learnt to make the mind mapping. The students could imagine and generate their ideas using the mind mapping and they could produce the recount text with the correct generic structure. Next, according to Zyoud, et. al ((2017), the research findings demonstrate the positive effect of the mind mapping strategy on eleventh grade students' writing performance. The reasons behind the results are due to the fact that using the mind mapping strategy provides opportunities for students to come up with original and useful ideas. Also, Waloyo (2017) stated that the students understand how the narrative is organized in the text, the tenses, and the overall sequences of the story through the use of mind maps.



Following the reasoning given above, the researcher has realized that a mind map can be used in one of the steps of the collaborative writing strategy. In collaborative writing, a mind map is used to help students generate ideas for their written pieces. Next, an assumption is something that you assume to be the case, even without proof. Assumptions are untested beliefs that we have without even realizing them. Our judgments, also known as inferences, are frequently founded on uncritically held presumptions. Thus, the basic assumptions in this study are:

The primary criterion by which one's comprehension and cleverness are judged. Our ability to write helps us communicate and think critically. It also improves our capacity to articulate and clarify our ideas to both ourselves and others.

Next, writing abilities are a crucial component of communication. Poor writing abilities lead to poor first impressions, and many readers respond negatively if they see a spelling or grammar error. Good writing skills enable you to deliver your message clearly and with ease to a far bigger audience. However, the researcher believes that Collaborative Writing Strategy could help students improve their writing ability.

## 2.5 Hypothesis

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<sub>1</sub>: There is a statistically significant difference of writing achievement between the students taught through collaborative writing blended with mind mapping and those through collaborative writing strategy.

As the second hypothesis, it is aimed to answer the second research questions which drawn as follows:

H<sub>2</sub>: There is an aspect of writing was significantly different between the two classes.

These hypotheses are examined using the methodology and resources covered in chapter three.

### **III. METHOD**

This chapter discusses the research design, instruments, validity and reliability, setting of the research, population and sample, data collecting technique, data analysis, homogeneity of writing test and hypothesis testing.

#### **3.1 Research Design**

The writer first outlined the research type before deciding on the procedure for this study. This study employed one group, a pre and post- test design. The purposes of the research are (1) to find out the significant improvement of students' writing achievement in two classes, and (2) to find out the significantly different of the students' writing achievement between the control and experimental class.

The researcher employed a writing exam to ascertain the mentioned aims, and the results are analyzed and concentrated on each component of writing ability that was most significantly affected by the CWS learning method. The pre-test and post-treatment tests were conducted (post-test). This study used a control group pre-test and post-test design. Following is the research design.

G1: T1 X T2

G2: T1 O T2

Notes:

G1= Experimental class

G2= Control class

T1= Pretest

T2= Posttest

X= Treatments (Modified CWS & MM)

O= Treatments (Original CWS)

(Setiyadi, 2006)

### **3.2 Instruments**

The researcher used a tool to collect the data to complete the data collection.

#### **3.2.1 Writing Test**

A writing test is given to students to ascertain their writing proficiency. The test includes data on the students' writing skills before and after treatment. The test is measured by using construct and content validity. Both the pre-test and the post-test last for 30 minutes. The researcher utilized a spoken rubric to assess students' writing performance to make it apparent how they are being measured.

### **3.3 Validity and realibility**

According to Setiyadi (2006), validity and realibility are important to paid attention during making instrument in order that later the result of the studey can be truthfull of its result. Simply, the tests should measure what supposed to be measured.

#### **3.3.1 Validity of Writing Tests**

Acoording to Setiyadi 2006) add that there are two basic types of validity; content validity and construct validity. Both types of validity will be analyzed to measure whether the tests have a good validity. First, content validity is the extent to which the tests must cover the domain that it purports to cover fairly and comprehensively. In addition, to fulfill this type of validity, the researcher will compose the writing tests based on the syllabus of seventh grade students in MTs Negeri 2 Bandar Lampung. Besides, the researcher also discusses the tests with the English teacher of MTs Negeri 2 Bandar Lampung to get a good content validity.

Second, construct validity deals with whether a test is in accordance with the theories of what it is supposed to measure. So, it is about whether the given test theoretically represents what it measures. In this research, the scoring criteria are based on the five aspects of writing adapted from Brown and Barley (1984), i.e. content, organization, vocabulary, language use, and mechanic.

### 3.3.2 Realibility of Writing Tests

The general consistency of a metric is known as reliability in statistics. The rank-order correlation used in this study's analysis to gauge how trustworthy the writing test scoring is. A nonparametric indicator of the strength and direction of a link between two variables evaluated on at least an ordinal scale is the Spearman rank-order correlation coefficient (also known as Spearman's correlation). The Greek letter rho (or the sign  $r_s$ ) is used to represent it. The test is applied to continuous data that does not meet the criteria for Pearson's product-moment correlation or to ordinal variables that do not meet the criteria. There is a rater in this study as well, which helps to increase the consistency of the subjective data collected. Rater cognition has grown to be a major area of inquiry in language assessment. The more people involved in the team, the more reliable the result (Setiyadi, 2018). Because of this, the researcher and an English teacher at MTs Negeri 2 Bandar Lampung served as the research raters.

To measure how reliable the scoring is, this study used Rank-order Correlation with the formula:

$$r_s = 1 - \frac{6 \sum d^2}{n(n^2 - 1)}$$

Where:

$r_s$  refers to reliability of the test

$n$  refers to number of students

$d$  refers to the difference of rank correlation (mean score from the three tasks)

1-6 refers to the constant number

The researcher first determined the coefficient between raters and then analyzed the following analysis on reliability coefficient using the reliability standard:

A very low reliability (ranges from 0.00 – 0.19)

A low reliability (ranges from 0.20 – 0.39)

An average reliability (ranges from 0.40 – 0.59)

A high reliability (ranges from 0.60 – 0.79)

A very high reliability (ranges from 0.80 – 0.100)

The test is deemed reliable if the tests score in the minimum range of 0.60-0.79 (high reliability), according to the reliability criterion above (Arikunto, 1998).

**Table 4. Reliability of Students' Pre-Post test Score of Experimental Class**

$$r_s = 1 - \frac{6 \sum d^2}{n(n^2 - 1)}$$

$$r_s = 1 - \frac{6(320)}{28(784-1)}$$

$$r_s = 1 - \frac{1920}{28(783)}$$

$$r_s = 1 - \frac{1920}{21924}$$

$$r_s = 1 - 0.08$$

$$r_s = 0.92 \text{ (A Very High Reliability)}$$

$$r_s = 1 - \frac{6\sum d^2}{n(n^2 - 1)}$$

$$r_s = 1 - \frac{6(255)}{28(784-1)}$$

$$r_s = 1 - \frac{1530}{28(783)}$$

$$r_s = 1 - \frac{1530}{21924}$$

$$r_s = 1 - 0.07$$

$$r_s = 0.93 \text{ (A Very High Reliability)}$$

**Table 5. Reliability of Students' Pre-test Score of Control Class**

Reliability of Students' Pre-test Score of Control Class

$$r_s = 1 - \frac{6\sum d^2}{n(n^2 - 1)}$$

$$r_s = 1 - \frac{6(396)}{28(784-1)}$$

$$r_s = 1 - \frac{2376}{28(783)}$$

$$r_s = 1 - \frac{2376}{21924}$$

$$r_s = 1 - 0.11$$

$$r_s = 0.89 \text{ (A Very High Reliability)}$$

Reliability of Students' Post-test Score of Control Class

$$r_s = 1 - \frac{6\sum d^2}{n(n^2 - 1)}$$

$$r_s = 1 - \frac{6(246)}{28(784-1)}$$

$$r_s = 1 - \frac{1476}{28(783)}$$



$$r_s = 1 - \frac{1476}{21924}$$

$$r_s = 1 - 0.07$$

$$r_s = 0.93 \text{ (A Very High Reliability)}$$

The result of the reliability of the tests is as follows. The reliability for pre-test and post-test scores in classes of Experimental and Control are 0.92, 0.93, 0.89, and 0.93, respectively. The reliability score for the scores is based on the reliability standard that ranges from 0.80 – 1.00. It can be concluded that the reliability score for all scores considered to be very high reliability.

### **3.4 Setting of the Research**

The setting included the time and the place of the research. This research was conducted in the academic year of 2022/2023, from January 25th to February 13th, 2023. It was held at MTs Negeri 2 Bandar Lampung, in the class of seventh.

### **3.5 Population and Sample**

The population of this research was junior high school students, and the sample was seventh-grader students. It was 28 seventh-grade students of MTs Negeri 2 Bandar Lampung for each control and experimental class.

### **3.6 Data Collecting Technique**

To gather the data, the researcher used several steps:

1. Administrating pre-test

The pre-test employed in this study was meant to evaluate students' writing skills before the introduction of CWS. The pre-test is a writing exercise where students have analyzed a descriptive text and expressed their thoughts in writing. It took the kids 30 minutes to comprehend it and 10 minutes to write about it, and the total time is 40 minutes for the pre-test.

2. Administrating post-test

The post-test employed in this study was meant to evaluate students' writing skills after the implementation of CWS. The test took 30 minutes to comprehend and 10 minutes to write. The total time for the post-test is 40 minutes.

3. Analyzing data gained

Presenting accurate and trustworthy data is the goal of data analysis in research. Avoid statistical errors, and figure out how to handle common problems like outliers, missing data, changing data, data mining, or creating graphical representations. The information gathered is used to answer the research questions.

### **3.7 Data Analysis**

The following is a brief list of steps in data analysis:

- 1) The data are gathered using writing tests. Next, using the definition of the study problem, the researcher validates the data.
- 2) The researcher analyzes the data.

- 3) The conclusion is reached following the display of the data to interpret the results.

The writer then divided the quantitative data into research questions to provide a coherent response.

The research questions are:

- (1) Was there the statistically significant difference of writing achievement between the students taught through collaborative writing blended with mind mapping and those through collaborative writing strategy?
- (2) Which aspect of writing was significantly different between the two classes?

The researcher uses the Independent and Paired sample T-test in SPSS to examine the data. The paired sample t-test is a statistical technique used to determine whether the mean difference between two sets of observations is significant. Each subject or thing is measured twice in a paired sample t-test. When a researcher wants to know if there is a difference between the means of two groups and if that difference is shown to be statistically significant, they employ the t-test statistical process. According to the definition of statistical significance, the statistical procedure's outcome must be unusual enough to establish that the differences seen would not have happened by chance alone. As a result, t-tests have an alpha (or significance) level of 0.05 or when the t value > t table.

### **3.8 Normality and Homogeneity of the Test**

A test to determine whether or not our data has a normal distribution is the normality distribution test. Using SPSS, the research's results were statistically examined.

The results are as follows.

**Table 4.** Normality Test for Writing Test of Two Class

**Tests of Normality**

Class A	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest	.111	28	.200*	.942	28	.126
Posttest	.091	28	.200*	.979	28	.833
Class B	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest	.097	28	.200*	.969	28	.549
Posttest	.148	28	.118	.935	28	.083

a. Lilliefors Significance Correction

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

The normality test results for each task and measurement are displayed in the table above. When Sig  $\Rightarrow$  0.05, the data is deemed as normally distributed, and when Sig. < 0.05 data is deemed to be not normally distributed, respectively. The table shows that all of the Shapiro-Wilk Sig. values are > 0.05. The Sig. value is 0.126, 0.833, 0.549, and 0.083 for pre-test and post-test scores in Experimental Class and Control Class. Since all are > 0.05, it can be concluded that all data are normally distributed.

To see the homogeneity of the scores, the table, and its explanation is as follows.

**Table 5.** Homogeneity of Writing Test for Two Classes

**Test of Homogeneity of Variance**

		Levene Statistic	df1	df2	Sig.
Pair 1	Based on Mean	3.483	1	53	.068
	Based on Median	3.396	1	53	.071
	Based on Median and with adjusted df	3.396	1	49.570	.071
	Based on trimmed mean	3.514	1	53	.066
Pair 2	Based on Mean	5.983	1	54	.180
	Based on Median	6.096	1	54	.170
	Based on Median and with adjusted df	6.096	1	51.081	.170
	Based on trimmed mean	6.089	1	54	.170

The data is assumed homogeny if the Sig. value is  $> 0.05$ . From the table above, the Sig. values based on mean are 0.068 and 0.180 for both classes. Since all Sig. value is  $> 0.05$ , which means that the data variant is all homogeny.

### 3.9 Hypothesis Testing

The researcher uses the Independent Sample T-Test in SPSS to assess whether there has been a significant improvement in the students' writing abilities between the pre-and post-test. If the  $t$  value  $>$   $t$  table, the hypothesis is accepted.

The following is how the formulation appears:

Here is the hypothesis testing of the first research question.

H0: There is no statistically significant difference of writing achievement between the students taught through collaborative writing blended with mind mapping and those through collaborative writing strategy.

H1: There is a statistically significant difference of writing achievement between the students taught through collaborative writing blended with mind mapping and those through collaborative writing strategy.

Here is the hypothesis testing of the second research question.

H0: There is no aspect of writing was statistically significant difference between the two classes.

H1: There is an aspect of writing was significantly difference between the two classes.

For the  $t$  value  $>$   $t$  table,  $H_1$  is accepted. It means that there is a statistically significant difference of writing achievement between the students taught through collaborative writing blended with mind mapping and those through collaborative writing strategy, and there is an aspect of writing was significantly different between the two classes.

## **V. CONCLUSIONS AND SUGGESSTIONS**

The conclusion of the research is discussed in this chapter, along with advice for English teachers and further researchers who wish to conduct research on collaborative writing strategy, including blended collaborative writing that employs mind mapping techniques.

### **5.1. Conclusions**

Based on the findings and discussions of the data analysis in this study, the author draws the following conclusions:

1. Based on the first research question, the researcher found the different students' writing ability in descriptive paragraph after being taught by the original collaborative writing method and those who used a blended collaborative writing technique with mind mapping. Then based on the result and discussion, the researcher concluded that there is a significant difference in ability between Experimental and Control class. The study discovered that the students in Experimental class got higher scores after being taught using blended collaborative writing using a mind mapping strategy than those in Control class who taught by using the original collaborative writing strategy. It can be concluded It can be concluded



that taught through the collaborative writing strategy blended with mind mapping better than original collaborative writing strategy.

2. In the second research question, the researcher found which aspects of writing was significantly different in descriptive paragraph. Based on the result of the research, it can be concluded that the all of aspects of students' writing ability in descriptive paragraph were improved. The result showed that using blended collaborative writing using mind mapping strategy was better than original collaborative writing strategy in improving students' writing ability. Meanwhile, both Experimental and Control Class students could follow the teaching and learning process well in each group, the improvement of students' aspects of writing ability in every class showed that there is a difference between Experimental and Control students in writing ability. It can be concluded that these two techniques have the benefit differently which can help the students to improve their writing ability.

## **5.2. Suggestion**

The following recommendations are made for teachers and future researchers interested in English language teaching and learning.

1. Suggestion for English Teachers

For English teachers, collaborative writing strategy blended with mind mapping help the students overcome difficulties in increasing their writing ability. As the findings showed that students' writing ability increased when they were taught through the strategy, it is recommended

that the teachers should use collaborative writing strategy blended with mind mapping.

2. Suggestion for Further Researchers.

This research was limited by the use of whole class, small sample size, and short-time period. Therefore, further research in teaching writing by using blended collaborative writing using mind mapping strategy should try to investigate with bigger sample size in longer-time period in order to get more reliable and valid on the result of the research. It is also suggested for further research to use more than one instrument such as qualitative instruments. The researcher recommends further researcher uses blended collaborative writing using mind mapping strategy in teaching writing by adding more than two variables such as learning style, motivation, attitude towards English, and other factors.

## REFERENCES

- Abbas & Herdi. (2018). *Solving The Students Problems In Writing Argumentative Essay Through Collaborative Writing Strategy*. English Review: Journal of English Education. 7. 105. 10.25134/erjee.v7i1.1499.
- Al Kamli & Hadeel. (2019). *The Effect of Using Mind Maps to Enhance EFL Learners' Writing Achievement and Students' Attitudes Towards Writing at Taif University*. Arab World English Journal. 1-92. 10.24093/awej/th.232.
- Al- Zyoud & Ali Ayed & Al Jamal & Dina & Baniabdelrahman. (2017). *Mind Mapping and Students' Writing Performance*. Arab World English Journal (AWEJ) Volume. 8 Number 4. December 2017
- Alamargot & Chanquoy. (2001). *General Introduction In: Through the Models of Writing*. Studies in Writing, vol 9. Springer, Dordrecht.
- Al-Jarf & Reima. (2009). *Enhancing freshman students' writing skills with a mind-mapping software*. Conference proceedings of eLearning and Software for Education (eLSE).
- Andersen & Charlotte. (2011). *Building a Collaborative Writing Strategy*. 13.
- Ariyanti & Fitriana. (2017). *EFL Students' Difficulties and Needs in Essay Writing*. *Advances in Social Science, Education and Humanities Research (ASSEHR)*, 158.
- As'Ari. (2016). *Using Mind Maps as a Teaching and Learning Tool to Promote Student Engagement*. *Loquen*, vol. 9, no. 01, 1-10.
- Barkley & Cross & Major. (2014). *Collaborative Learning Techniques: A Handbook for College Faculty*. Hoboken, NJ: John Wiley & Sons.
- Brown. (2003). *Language Assessment: Principles and Classroom practices*. San Francisco: San Francisco State University.
- Brown. (2007). *Principles of Language Learning and Teaching*. USA: Longman
- Brown. (2001). *Teaching by Principles: An Interactive Approach to Language Pedagogy*. New-York: Longman.

- Bukhari. (2016). *Mind Mapping Techniques to Enhance EFL Writing Skill*. *International Journal of Linguistics and Communication*. 4. 58-77.
- Montserrat. (2015). *Learning philosophical thinking through collaborative writing in secondary education*. *Journal of Writing Research*. 7. 157-200.
- Fareed & Ashraf & Bilal. (2016). *ESL Learners' Writing Skills: Problems, Factors and Suggestions*. *Journal of Education and Social Sciences*. 4.
- Graham. (2019). *Changing how writing is taught*. *Review of Research in Education*, 43(1), 277-303.
- Graham & Perin. (2007). *Writing Next: Effective Strategies to Improve Writing of Adolescents in Middle and High Schools*. A Report to Carnegie Corporation of New York
- Grgurović. (2011). *Blended Learning in an ESL Class: A Case Study*. *CALICO Journal*, 29(1), 100–117.  
<http://www.jstor.org/stable/calicojournal.29.1.100>
- Hadjerrouit. (2011). *A Collaborative Writing Approach to Wikis: Design, Implementation, and Evaluation*. *Issues in Informing Science and Information Technology*, vol 8. <http://iisit.org/Vol8/IISITv8p431-449Hadjerrouit224.pdf>
- Harlena, Deasy & Mukhaiyar, Hamzah. (2020). *Collaborative Writing Strategy for Teaching Writing Descriptive Text*. 10.2991/assehr.k.200306.045.
- Hasan & Marzuki. (2017). *An Analysis of Student's Ability in Writing at Riau University Pekanbaru*. *Theory and Practice in Language Studies*, 7(5),
- Kurniawan & Rahmawati & Faihatunnisa & Paramita & Khodriyah. (2020). *The Effectiveness of Collaborative Mind Mapping to Develop Writing Skills at MTsN 4 Mojokerto*. 10.2991/assehr.k.200427.030.
- Naibaho. (2022). *The integration of mind mapping strategy on students' essay writing*. 320 328
- Latifah & Rachmawati. (2020). *The effectiveness of using collaborative writing Strategy for writing ability of senior high school students*. *SELL (Scope of English Language Teaching, Linguistics, and Literature) Journal*, 5(1), 1-18.
- Lingard. (2021). *Collaborative writing: Strategies and activities for writing productively together*. *Perspectives on Medical Education*. 10.1007/s40037-021-00668-7.

- Fong. (2012). *Benefits of Collaborative Writing for ESL Advanced Diploma Students in the Production of Reports*. US-China Education Review B 4. B4. 396-407.
- Lowry & Curtis & Lowry. (2008). *Building a Taxonomy and Nomenclature of Collaborative Writing to Improve Interdisciplinary Research*. Brigham Young University
- McKay. (2005). *Assessing Young Language Learners (Cambridge Language Assessment)*. Cambridge: Cambridge University Press. doi:10.1017/CBO9780511733093
- Storch. (2005) *Collaborative writing: Product, process, and students' reflections*. Journal of Second Language Writing, 153-173
- Pamungkas. (2012) *Using The Mind Mapping Technique To Improve The Students' Writing Skill Of The Tenth Grade Students At Sma N 1 Pleret In The Academic Year Of 2011 / 2012*. S1 thesis, Universitas Negeri Yogyakarta.
- Purcell & Friedrich. (2013). *The impact of digital tools on student writing and how writing is taught in schools*. Washington, DC: Pew Research Center, 16.
- Rahayu. (2016). *Using Google Docs on collaborative writing technique for teaching English to non English department students*. Proceedings of ISELT FBS Universitas Negeri Padang, 4(1), 226-236
- Rahmatunisa. (2014). *Problems faced by Indonesian EFL learners in writing argumentative essay*. Journal of English Education, 3(1)
- Sajedi. (2014). *Collaborative Writing Summary And EFL Students' L2 Development*. Elsevier.
- Sijono. (2018). *A Study Of Mind Mapping Collaborative Writing Techniques For Teaching Writing Descriptive Texts*. Vox Edukasi, vol. 9, no. 1, 2018, doi:10.31932/ve.v9i1.34.
- Kwon & Cifuentes. (2009) *The comparative effect of individually-constructed vs. collaboratively-constructed computer-based concept maps*, *Computers & Education*, Volume 52, Issue 2, Pages 365-375,
- Storch. (2013). *Collaborative writing in L2 classrooms* (Vol. 31). Multilingual Matters.
- Sukirman. (2016). *Using Collaborative Writing in Teaching Writing*. Langkawi , 2.

Pham. (2021). *The Effects of Collaborative Writing on Students' Writing Fluency: An Efficient Framework for Collaborative Writing.*

Waloyo. (2017). *The implementation of mind mapping technique in teaching writing: a case study at man 13 jakarta.*