

**MIND MAPPING THROUGH COLLABORATIVE
WRITING TO IMPROVE
STUDENTS' WRITING ABILITY**

A Thesis

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**MASTER OF ENGLISH EDUCATION STUDY PROGRAM
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FACULTY OF TEACHER TRAINING AND EDUCATION
LAMPUNG UNIVERSITY
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ABSTRACT

MIND MAPPING THROUGH COLLABORATIVE WRITING TO IMPROVE STUDENTS' WRITING ABILITY

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The objectives of this research were (1) to investigate the difference of writing ability between students who were taught by collaborative writing and those who were taught by mind mapping through collaborative writing, (2) to reveal the difference of writing ability between extrovert and introvert students, and (3) to find out the interaction between teaching strategies, students' personalities and writing achievement. The population was the second-grade students of MAN 1 Metro in the academic year 2023/2024. The samples of this research were two classes, X3 and X6. Both of classes consisted of 37 students. The research was factorial design 2x2. The data were analyzed with nonparametric test by using Mann Whitney U-test and Chi-Square for independence.

The results show that there was a significant difference of students' writing ability between students who are taught through collaborative writing and those who are taught through Mind Mapping through Collaborative Writing. The significant value was 0.000 and it was lower than 0.05. There was no significant difference of students' writing ability of extrovert and introvert students. It could be seen from the significant value 0.618 in pre-test score and 0.105 in post test score, both scores were higher than 0.05. There was no interaction between those strategies and students' personality styles on writing ability. it could be seen from the significant value 0.354 that was higher than 0.05. Therefore, it can be concluded that both collaborative writing and mind mapping through collaborative writing can improve students' writing ability. Nevertheless, mind mapping through collaborative writing was better than collaborative writing. The extrovert and introvert students were successful in improving their writing ability after learning with collaborative writing and mind mapping through collaborative writing.

Keywords: Collaborative Writing, Mind Mapping through Collaborative Writing, Personality Styles, Writing Ability

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In

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CURRICULUM VITAE

Intan Caria was born in Metro on September 26th, 1988. She is the second daughter of Herli and Nurseha. She has 3 sisters named Eka Cahya Warisa, Desti Herlia, and Meilina Balqis. She married to Rias Feriansyah and has one daughter named Loveina Aura Ahsaninnisa and one son named Muhammad Alfein Avicenna.

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DEDICATION

This thesis is fully dedicated to:

My greatest parents, Herli and Nurseha

My beloved husband, Rias Feriansyah

My beloved sisters, Eka Cahya Warisa, Desti Herlia, and Meilina Balqis

My lovely children, Loveina Aura Ahsaninnisa and Muhammad Alfein Avicenna

All of my teachers and lecturers

All of my friends in MPBI 2021

My Almamater, Lampung University

MOTTO

الْإِحْسَانُ إِلَّا الْإِحْسَانُ جَزَاءُ هَلْ

Is there any reward for goodness except goodness? (QS. Ar-rahman: 60)

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TABLE OF CONTENT

TITLE	i
ABSTRACT	ii
COVER	iii
APPROVED	iv
ADMITTED	v
LEMBAR PERNYATAAN	vi
CURRICULUM VITAE	vii
DEDICATION PAGE	viii
MOTTO	ix
ACKNOWLEDGEMENTS	x
TABLE OF CONTENTS	xii
LIST OF TABLES	xv
LIST OF FIGURES	xvi
LIST OF APPENDIXES	xvii
I. INTRODUCTION	
1.1 Background of the Research	1
1.2 Research Questions	10
1.3 Objectives of the Research	10
1.4 Scope of the Research	11
1.5 Uses of the Research	11
1.6 Definition of Terms	12
II. LITERATURE REVIEW	
2.1 Writing	13
2.1.1 Aspects of writing	14
2.1.2 Teaching writing	15
2.2 Collaborative Writing Technique	17
2.2.1 Definition of Collaborative Writing	17
2.2.2 Advantages of Collaborative Writing	18
2.2.3 Teaching writing by using Collaborative Writing	20

2.3 Mind Mapping	21
2.3.1 Definition of Mind Mapping	21
2.3.2 Advantages of Mind Mapping	22
2.3.3 Teaching Writing by Using Mind Mapping	24
2.4 The procedures of Teaching Writing Using Mind Mapping through Collaborative Writing	25
2.5 Argumentation Text.....	27
2.6 Personality Styles	29
2.6.1 Extrovert	32
2.6.2 Introvert	33
2.7 Theoretical Assumption	33
2.8 Hypothesis	35

III. RESEARCH METHODS

3.1 Research Design	36
3.1.1 Research Method.....	36
3.1.2 Population and Sample	38
3.2 Data Collecting Technique	39
3.2.1 Research Instrument	39
3.2.2 Validity and Reliability of the Instrument	41
3.2.3 Criteria for Scoring Students' Writing Ability	46
3.3 Data Analysis	47
3.4 Research Procedures	48
3.5 Hypotheses Testing	50

IV. RESULT AND DISCUSSION

4.1 Result	52
4.1.1 The Process of Teaching Writing by Using Collaborative Writing in Control Class	53
4.1.2 The Process of Teaching Writing by Using Mind Mapping Through Collaborative Writing in Experimental Class.....	55
4.1.3 Result of Students' Personality Questionnaires	57
4.1.4 Result of Writing Pre-test in Control and Experimental Class	57
4.1.5 Result of Writing Post-Test in Control and Experimental Class	58
4.1.6 Result of Extrovert and Introvert Students' Writing Ability	59
4.1.7 Requirements of Data Analysis	60
4.1.8 Result of Hypotheses	62
4.2 Discussion	69
4.2.1 Students' writing ability taught by Collaborative Writing And Mind Mapping through Collaborative Writing	69
4.2.2 Writing ability of Introvert and Introvert students	73
4.2.3 Interaction between Teaching Strategies and Personality Styles on Students' Writing Ability	75

V.	CONCLUSION AND SUGGESTIONS	
5.1	Conclusion	77
5.2	Suggestion	78

REFERENCES

APPENDICES

LIST OF TABLES

Tables

2.1 Steps of Collaborative Writing and Mind Mapping through Collaborative Writing	27
3.1 Research Design in Table	37
3.2 Eysenck's Personality Inventory (EPI) scoring system	40
3.3 Learning Achievement	43
3.4 Scoring Table of Interrater	45
3.5 Interrater reliability Statistics of pretest writing score	45
3.6 Interrater reliability Statistics of post-test writing score	45
3.7 Level of Standard Reliability	46
4.1 The Result of Students' Personality Questionnaire	57
4.2 The Result of Students Writing Achievement of Pre-test	58
4.3 The Result of Students Writing Achievement of Post-test	58
4.4 Research Design Result	59
4.5 The Normality of the Data	60
4.6 The homogeneity of the Data	61
4.7 N-Gain Score of Pre-test and Post-test	63
4.8 The Different Result of Collaborative Writing and Mind Mapping through Collaborative Writing	64
4.9 The Different Result of Extrovert and Introvert Students' Writing Pretest	66
4.10 The Different Result of Extrovert and Introvert Students' Writing Post-test	66
4.10 The Result of Chi-Square Score between Strategies and Personality	68

LIST OF FIGURES

Figure

2.1 Types of Personality	31
3.1 Graph of the personality traits	40
4.1 Chart of Interaction between strategies and personalities.....	68

LIST OF APPENDIXES

Appendix 1. Personality Styles Questionnaire	84
Appendix 2. Scoring System of Writing	88
Appendix 3. Pre-test	90
Appendix 4. Post-test	91
Appendix 5. Lesson Plan of Experiment Class	92
Appendix 6. Lesson Plan of Control Class	107
Appendix 7. Result of Students' Personality Style in Experiment Class	122
Appendix 8. Result of Students' Personality Style in Control Class	123
Appendix 9. Students' writing score in pre-test and post-test from rater 1	124
Appendix 10. Students' writing score in pre-test and post-test from rater 2.....	132
Appendix 11. Result of Pre-test in Control Class	140
Appendix 12. Result of Post-test in Control Class	141
Appendix 13. Result of Pre-test in Experiment Class	142
Appendix 14. Result of Post-Test in Experiment Class	143
Appendix 15. N-Gain Score of Pre-test and Post-test	144
Appendix 16. Score of Extrovert Students' Writing in Control	145
Appendix 17. Score of Introvert Students' Writing in Control Class	146
Appendix 18. Score of Extrovert Students' Writing in Experiment Class	147
Appendix 19. Score of Introvert Students' Writing in Experiment Class	148
Appendix 20. Score of Extrovert Students' Writing	149
Appendix 21. Score of Introvert Students' Writing	150
Appendix 22. Interrater Reliability Statistics of Pre-test writing Score	151
Appendix 23. Interrater Reliability Statistics of Post-test writing Score	152
Appendix 24. Result of Normality Test	153
Appendix 25. Result of Homogeneity Test	154
Appendix 26. Mann Whitney U-Test Result (The Difference Result of Collaborative Writing and Mind Mapping through Collaborative Writing Strategy)	155
Appendix 27. Mann Whitney U-Test (The difference between Extrovert and Introvert Students' Writing Pre-test)	156
Appendix 28. Mann Whitney U-Test (The difference between Extrovert and Introvert Students' Writing Post-test)	157
Appendix 29. The result of Chi-Square analysis between Strategies and Personality	158
Appendix 30. Result of students' personality questionnaires	160
Appendix 31. Result of Eysenck Personality Inventory (EPI) scoring system....	164
Appendix 32. Result of students' writing in pre-test	167
Appendix 33. Result of students' writing in post-test	168
Appendix 34. Surat Izin Penelitian	170
Appendix 35. Surat Keterangan Pelaksanaan Penelitian	171

I. INTRODUCTION

This chapter provides descriptions about the background of the research, research questions, objectives of the research, scope of the research, the use of the research and definition of term.

1.1 Background of the research

Writing as one of the four language skills has an important role in the context of teaching English as a foreign language. According to Byrne (1993: 1), when we write, we employ graphic and symbols. However, writing is much more than the formation of graphic symbols. To construct words, the symbols must be placed according to standards, and words must be arranged to form sentences. Furthermore, Hyland (1996:9) explains that writing is a means of communicating personal meaning. It emphasizes the ability of the individual to build his or her own perspective on a topic. In line with that, Nunan (2003:88) stated that writing is physical act of committing words or ideas and mental work of discovering ideas, thinking about how to express and organize the ideas into clear statement and paragraphs for a reader.

Based on the statements above, it can be concluded that writing is an activity that can give many benefits for students. It can help students to express feeling, describe something, discuss an idea, present a point of view, and

share experience they have in the form of written product. In accordance with government directions and policies in learning achievement document, students are expected to be able to communicate orally or in writing. By writing, students can practice increasing their creativity in thinking and making it into written form according to their thoughts, feeling, and experiences.

In practice, there are many obstacles faced by students in the process of writing. According to Broughton, et al. (1980:116), writing is different from speaking. The final product of writing is not nearly instant. Writing is not an easy or spontaneous activity. Heaton (1991:13) says that writing skills are complicated and sometimes difficult to teach since it requires mastery of not only grammatical and rhetorical devices but also conceptual and judgemental elements. Byrne (1993:5) explains that writing has more than just a psychological impact. It may also cause a difficulty with content. Most students who are required to write have experienced being at a loss for ideas. Furthermore, there were three aspects which make writing difficult. The first is the psychological problem. Writing is an individual activity. The writers cannot get direct feedback like in speaking activity. The second is linguistic problem. The writers have to ensure that the choice of words, sentence structure, and other cohesive devices are correct for conveying their message. The last is the cognitive problem. Writing is learned through a process of instruction. It is not a natural process like speaking. Harmer (2004:61) states that although some students are enjoying writing in English, some may be less interested. This reluctance may derive from worries about their

handwriting, spelling, or ability to build phrases and paragraphs. If these concerns are reinforced as a result of their inability to accomplish writing duties satisfactory, the students' attitude toward writing is likely to be worsen.

Based on the statements above, we can clearly say that writing needs process and it will take time for the students to write well. It involves of exploring thoughts and ideas by thinking about information to be collected to use as evidences to put into a piece of paper. It also involves organizing the ideas into clear statement and paragraphs by considering some aspects of writing. Another important thing is to make sure students do not feel anxious while writing. To solve the problem, teacher should be more creative in teaching writing and offers student with an interesting and useful learning process. One of the alternative techniques to help the students in improving their writing skill is by using Collaborative Writing.

Collaborative writing can be defined as a written product composed of pair or a group of students who work together to produce one common product (Inglehart et al., 2003). According to Lowry et al. (2004), collaborative writing is a social process in which the group members focus on a common goal, negotiate, collaborate, and discuss while writing a common text. In other words, we can conclude that collaborative writing is a strategy that can help students in the process of writing. It provides opportunities for students to work together, discuss, and correct each other's mistakes in groups or with pairs in producing writing from the first step to the last step of writing.

Similarly, Storch (2019) defines collaborative writing as an activity that two or more writers work together to produce a single text.

Many studies have been conducted to investigate the effectiveness of collaborative writing. Louth et al (2010) confirms that students who practiced collaborative writing mostly composed better than students' those who worked individually. Storch (2005) finds that a comparison of the products of pairs and individual showed that pairs produced shorter texts, but the texts had greater grammatical accuracy and linguistic complexity. Collaboration allowed students to share ideas and provide feedback to one another. Ansu and Yesuf (2022) reveals that students who practiced the writing tasks or activities collaboratively improved their attitude toward learning writing skills more significantly than students who completed the writing tasks individually.

Although previous studies succeeded in improving students' writing in some aspects, there are still obstacles faced by students in the process of collaborative writing. Hanifah (2018) states that in the process of developing ideas in collaborative writing, the students face some difficulties such as debating each other, getting stuck, and even getting confused with what they want to write. Herwiana (2021) states that Collaborative writing also brings misunderstanding among students in group. Some students did not understand their friends' ideas. Students were difficult to combine one's idea and others. It can be assumed that process of generating ideas, developing thought, and putting ideas together is the main problem. To overcome the problems, the

researcher will modify collaborative writing in the first and second step of collaborative writing.

The researcher will use mind mapping as the modification in the process of generating and organizing ideas, and creating outline.

According to Hedge (1988:58), making a mind map is strategy for making notes before writing. In other words, scribbling down ideas about the topic and developing ideas as the mind makes associations. The strategy can be used to explore almost any topic. Once the strategy has been established with students, they can be encouraged to use it in subsequent writing activities. The advantage of mind maps as an organizing strategy, particularly with descriptions, is that all the aspects of a topic can be seen in relation and in proportion to each other, and possible links between paragraphs or section of an essay become easily apparent. Buzan (2005:15) also states that a Mind Map is the easiest way to put information into our brain and to take information out of our brain. It is creative and effective means of note-taking that literally 'maps out' out thoughts and it is so simple. Therefore, mind mapping technique is a way of helping students to think more creatively to associate ideas more easily. Mind mapping helps the students in terms of: plan, communicate, become more creative, save time, solving the problems, focus on learning, develop, and clarify thoughts, remember be better, learn more quickly and efficiently. Buzan (2013: 9) explains that mind mapping captures and helps us record, memorize, connect, and output information in a visually expressive way. By using mind mapping, we will read faster,

remember more, concentrate better, get in creative flow, and make confident choices and smarter decisions.

Previous researchers also clarified that the use of mind mapping in the learning process, especially in writing give many benefits for students. Wette (2017) proves that the research result shows significant advances in the extensiveness and depth of the students' formal textual knowledge, and some evidence of progress in the rhetorical and process dimensions of their understanding. Students' reflective comments provide support for the view that map construction helped to raise their awareness of textual and rhetorical components of conceptual knowledge, and it also boosted their motivation and sense of self-efficacy. Pradasari and Pratiwi (2018) find that mind mapping can be implemented to enhance students' performance in writing procedure text and solve the problem to generate and organize their ideas before writing. it also brought positive attitude in teaching and learning. Furthermore, Basri and Syamsia (2020) also clarify that the students' score of writing the descriptive text have increased after they use mind mapping. The students feel enthusiastic and very creative in making mind mapping and were very concentrated in learning activities.

Based on the discussion about mind mapping above, mind mapping has many benefits for students. It helps students to think and remember better, solve the problems, and take action. It also encourages creativity and flexibility, and help to think outside the box. So, mind mapping in writing is expected can overcome the students' problems in mastering writing skill.

Another factors which may influence the effectiveness of collaborative writing is personality types. Eysenck (1964, as cited in Abali, 2006) defines personality as the characteristics and qualities of a person which are seen as a whole and which differentiate him or her from other people. Richards & Schmidt (2010) explains that personality is those aspects of an individual's behaviour, attitude, belief, thoughts, actions, and feelings which are seen as typical and distinctive of that person and recognized as such by that person and others. From those definition, it can be concluded that personality is person's character that influences what to do to other people or his/her environment and it differs from others.

Harmer (2004:85) states that when we realized that students were composed of individuals, we had to start thinking about how to respond them individually by considering their characteristics. Furthermore, Dornyei and Ryan (2015) as cited in Winarti et.al., (2021) defines that personality types are thought to be an essential component in influencing students' behaviour, which influences the learning process. Among the various model of personality types in the literature, extroversion and introversion were being the focus of this study. Brown (2007:154) explains that understanding how human beings feel, respond, believe and value is an exceedingly important aspect of a theory of second language acquisition, extroversion and introversion are potentially important factor in the second language acquisition. Those statements are being reasons why the researcher interest to investigate the students' personality, especially extrovert and introvert.

Extrovert and introvert have distinctive characters which are seen from behavioural patterns. Eysenck (1964, as cited in Abali, 2006) proposes observational behaviour for both extrovert and introvert. Extroverts have some behavioural pattern tendencies such as sociable, like parties, has many friends, need to have people to talk and does not like reading and studying by himself. Meanwhile, quiet, retiring sort of person, introspective, fond of books rather than people are some behavioural patterns which introverts have. Extroverts and introverts have their unique characteristics which coexist in a person and it will influence how they will behave in a certain situation. Based on those statements, it seems that those who tend to have introvert characters are more comfortable working alone, while extrovert characters prefer work in groups or pair.

Jung (1971) as cited in Tlili, et. al. (2016) defines the term extrovert and introvert from how a person moves their energy toward external or internal world. Those who are in extrovert preference tend to move their energy toward the external world of individuals and activities. They prefer to spend substantial amounts of time on interacting or engaging with other people. Thus, extroverts are more interested in the activities and things in the world around them than on their own lives. Introverts, on the contrary, move their energy toward their inner world of feelings and ideas. People who have this preference tend to prefer being alone and avoid the activities which involve many people.

Based on the explanation above, since the extrovert and introvert have different characteristics, it seems that both extrovert and introvert students will have different achievement in writing ability. In line with this statement, find that the extrovert university students have an accepted level of language proficiency, and the introvert university students have a low level of language proficiency.

The result also shows that the extrovert students' scores is not significant regarding the writing part. Meanwhile, the introvert students' scores the statistically significant in writing. Zaswita and Ihsan (2020) in their research result explain there is a significant impact on the students' personalities to their writing ability. Students with introvert personalities have better writing scores than students with extrovert personality. Therefore, based on the different findings above, this research will also review about how is the difference between introvert and extrovert students' writing ability in using mind mapping through collaborative writing.

The background above motivates the researcher to support the learners' writing ability by modifying collaborative writing by using mind mapping. The population and sample for this research is students in second grade of MAN 1 Metro which based on the pra-survey results showed that there was still a problem in the school especially in process of writing. Sometimes the teacher got confused how to teach the students effectively in writing. It can be also seen from the teacher assessments documents for writing activities which shows that most students' scores are low.

1.2 Research Questions

Related to the background stated before, the researcher formulated the following research questions:

- a. Is there any significant difference of students' writing ability between students who are taught by collaborative writing and those who are taught by Mind Mapping through Collaborative Writing?
- b. Is there any significant difference of students' writing ability of extrovert and introvert students?
- c. Is there any interaction between those strategies and students' personality styles on writing ability?

1.3 Objective of The Research

In relation to the statements of the problem above, the objectives of this research are determined as follows:

- a. To identify whether there is any significant difference of students' writing ability between students who are taught by collaborative writing and those who are taught by Mind Mapping through Collaborative Writing.
- b. To identify whether there is any significant difference of students' writing ability of extrovert and introvert students.
- c. To identify whether there is any interaction between those strategies and students' personality styles on writing ability

1.4 Scope of The Research

The scope of this research is teaching English using Mind Mapping through Collaborative Writing to improve students' writing ability. The subject of this research is the Second grade of MAN 1 Metro. Students' personalities in the term of Extrovert and Introvert styles are being considered in this research. Argumentation text in the form of analytical exposition is chosen as the materials that are given to the students and it is in line with the syllabus that is currently used at the school program. Analytical exposition is a text that elaborates the writer's opinion on phenomena/ issues happening around him/her. The learning process deals with the understanding of students regarding content of the text, social function, generic structure, and language features of the text that are used in the argumentation text. The improvement of students' writing achievement could be seen in the result of pre-test and post-test.

1.5 Uses of the Research

The finding of this research might be useful both theoretically and practically.

- a. Theoretically, the result of this research will be used to give additional contribution on case of applying Mind Mapping through Collaborative Writing to the students with different personality (extrovert and introvert) in improving their writing ability. It also may support or verify the previous research or theory.
- b. Practically, the result of this research is expected to provide teachers with a new insight that might be taken a guideline in teaching writing and pay attention to the students' different personality.

1.6 Definition of Term

In order to avoid misunderstanding, some terms used in this research are defined as follows:

Writing

Writing is one of language skills in which the students learn how to get ideas and express the ideas in written form by applying content, grammar, vocabulary, mechanics, and organization.

Collaborative Writing

Collaborative writing is students' pairs or small group discussion to write a formal paper together.

Mind Mapping

Mind mapping is a diagram used to represent words, ideas, tasks, or other items linked to and arranged around a central key word or idea.

Argumentation Text

Argumentation text is a text in which we agree or disagree toward a certain issue, using reason to support the opinion.

Extrovert

Extrovert can be seen as the extent to which a person has preference tend to move their energy toward the external world of individuals and activities. They prefer to spend substantial amounts of time on interacting or engaging with other people.

Introvert

Introvert can be seen as a person who moves their energy toward their inner world of feelings and ideas. People who have this preference tend to prefer being alone and avoid the activities which involve many people.

II. LITERATURE REVIEW

This chapter deals with the following topics: the general concept of writing, aspects and process of writing, collaborative writing technique, mind mapping, the procedures of teaching writing using modified collaborative writing, argumentation text, personal styles, theoretical assumption, and hypotheses.

2.1 Writing

Writing is one of the four skills and it is an important process in English learning. Writing is an activity that cannot be separated from our daily life. Writing is an activity or process to express ideas or opinion. The definition of writing is variously stated by some experts. Elbow (1998:7) defines writing as the ability to generate words and thoughts from ourselves, and it can be also defined as the ability to criticize them to determine which ones to use. Brown (2000:335) also states that writing is the written products of thinking, drafting, and revising that require specialized skills on how to generate ideas, how to organize them coherently, how to use discourse markers and rhetorical conventions coherently into a written text, how to revise text for clearer meaning and how to edit text for appropriate grammar and how to produce a final product. Nunan (2003:88) explains that the nature of writing can also be defined as both physical and mental activity that is aimed to

express and impress. It is categorized as the physical activity because a writer is required to be able to do the act of committing words or ideas.

As a mental work, the activities of writing focus more on the act of inventing ideas, thinking about how to express and organize them into clear statements and paragraphs that enable a reader in understanding ideas of the written work.

In conclusion, writing is a productive skill that must be learned and mastered by the English learners that involve the process of thinking, drafting, and revising. Writing is a means of communication that enables the students to synthesize the knowledge they have. It is a process of putting thought, ideas or opinion in written form involves some aspects such as a word choice, grammar, mechanics and context, and another language competence.

2.1.1 Aspect of Writing

In writing, the students are expected to be able to write about the information that they want to share to the reader effectively so that the communication will be meaningful and understandable. In order to write well, the students should consider general concepts or main areas of writing. There are principles in writing in order to write a good writing product. According to Heaton (1991:13), there are five components or main areas of writing as follows;

1. Language Use. It refers to the ability to write with correct and appropriate sentences.
2. Mechanical skills. It refers to the ability to use correctly those conventions peculiar to the written language. For example, punctuation, spelling, and others.

3. Treatment of Content. It refers to the ability to think creatively and develop thoughts, excluding all irrelevant information.
4. Stylistic skills (vocabulary use). It refers to the ability to manipulate sentences and paragraphs, and use language effectively.
5. Judgement skills (organization). It refers to the ability to write in an appropriate manner for a particular purpose with a particular audience in mind, together with an ability to select, organise and order relevant information.

In conclusion, there are five aspects in writing mentioned above. All those aspects should be covered so the intended readers can understand the message or information shared by the writer effectively.

2.1.2 Teaching Writing

English teachers should help students through the writing process for them to be effective. The instructor plays an important role in teaching students how to convey their ideas or imaginations in writing form. Students must pay attention to the aspects of writing while writing. In teaching writing, teachers must consider about some processes of writing. Harmer (2004: 4) explains that process of writing has four main elements as follows:

1. Planning

In this stage, writers plan what they are going to write. There are three main issues that must be considered by them in this stage. First, they must consider the purpose of their writing since this will influence not only the type of the text they wish to produce, but also the language they use, and the information they choose to include.

Second, they must think about the audience they are writing for, since this will influence not only the shape of the writing (how it is laid out, how the paragraphs are structured, etc.), but also the choice of language (whether for example, it is formal or informal in tone). Third, they must consider the content structure of the piece. That is, how best to sequence the facts, ideas, or arguments which they have decided to include. Third, they must consider the content structure of the writing. how best to sequence the facts, ideas, or arguments which they have decided to include.

2. Drafting

In the process of drafting, the writers can refer to the first version of a piece of writing as a draft. This first 'go' at a text is often done on the assumption that it will be amended later. As the writing process proceeds into editing, a few drafts may be produced on the way to the final version.

3. Editing (Reflecting and revising)

Once writers have produced a draft, they usually read through what they have written to see where it works and where it does not. Perhaps the order of the information is not clear. Perhaps the way something is written is ambiguous or confusing. Reflecting and revising are often helped by other readers (or editors) who comment and make suggestions. Another reader's reaction to piece of writing will help the author to make appropriate revisions.

4. Final version

Once writers have edited their drafts, making the changes they consider to be necessary, they produce their final version. This may look considerably different

from both the original plan and the first draft, because things have changed in the editing process. But the writer is now ready to send the written text to its intended audience.

To sum up, the arrangement of the steps cannot be separated because it works like a wheel. Each stage in the process of writing will work in line to help the students in composing the text.

2.2 Collaborative Writing Technique

Collaborative writing is a technique which comes from the concept of collaborative learning based on the work of Vygotsky. According to Vygotsky (1978) as cited in Storch (2005), human development and learning take place in social context. In other words, human being learns something from the people around them.

2.2.1 Definition of Collaborative Writing

Collaborative writing is seen as an effective teaching method and highly recommended to be implemented in the writing classrooms by many researchers worldwide. Inglehart et al., (2003) explains that collaborative writing can be defined as a written product composed of pair or a group of students who work together to produce one common product. according to Lowry et al. (2004), collaborative writing is a social process in which the group members focus on a common goal, negotiate, collaborate, and discuss while creating a common text. Furthermore, Fung (2006) states that Collaborative writing is two or more people sharing responsibility for producing a single document through mutual interactions, shared expertise, and joint decision-making throughout the writing process.

Similarly, Storch (2019) defines collaborative writing as an activity which two or more writers collaborate to create a single text. In the activity, co-authors participate in all phases of the writing process, sharing responsibility for and ownership of the entire text created. Deveci (2018) as cited in Chalak & Karimi (2022) confirms that collaborative writing allows student to share their thoughts through teamwork and fosters active participation in text construction.

In conclusion, Collaborative writing refers to the process of which provides students the opportunity to discuss, explore, and enhance learning capabilities. As collaboration means the sharing of labour among group members, the term collaborative writing can be broadly defined as the co-authoring of a written text by two or more students in a writing lesson.

2.2.2 Advantages of Collaborative Writing

In general, working in a group during writing will produce better result than working individually. Inglehart, et al., (2003) states that both students and teachers get benefit from the collaborative work. The benefit for students includes building judgement, increasing analytical ability, gaining greater subject matter understanding, sparking genuine, life-long subject matter interest, and easing anxiety, worry, and fear. Meanwhile, the benefit for teachers includes enabling students to work with others towards common goals, increasing student class participation and subject matter interest, and keeping students on task. Harmer (2004:73) states that successful collaborative writing enables students to learn from one another. It offers each person of the collaboration access to others' ideas and knowledge, and it imbues the activity with a sense of shared goals which can be

very motivating. It is supported by Storch (2005) whose research shows that students working collaboratively produce better texts in terms of task fulfilment, grammatical accuracy, and complexity. It is because collaborative writing affords students the opportunity to give and receive immediate feedback on language. This immediate feedback will not be there when students work individually.

Fung (2006) categorizes the advantages of collaborative writing into three different views: social, cognitive, and practical. In the social view, the most important benefit of collaborative writing is the group interaction. Students can learn more about writing by talking and listening to their peers. Besides that, during the collaboration, students are certainly faced by different opinions from the members of the group. This difference of opinions also improves students' problem-solving ability as they learn to reach consensus. In the cognitive view, collaboration increases the awareness of the audience. In the collaborative writing, peers become an intermediate audience while the text is being constructed. It makes the students more alert to analytical and critical thinking. Finally, in the practical view, collaborative writing generally improves individual writing. It also furthers the students' independence because they may learn about the knowledge of writing for their peers in the group. Besides that, Ede and Lunsford in Fung (2006) states that perhaps the most practical of all is that collaborative writing can prepare students for real-world applications. It is because the experience of collaborative writing improves teamwork which is essential in most professions.

Barkley, et al. (2014:291) states that the usefulness of collaborative writing is it can make the students learn and perform the stages of writing more effectively. Yesuf & Anshu (2022) find that a large number of the students liked and enjoyed applying

collaborative writing because they felt that most of the difficulties and obstacles such as stress and anxiety that they frequently encountered in EFL writing classes were shared among the members of their collaborative group, and they came up with some solution collectively. They believed that collaborative writing thought them how to produce and discover significant ideas for writing topic, as well as how to learn diverse approaches of exchanging opinions on a certain topic from one another.

From those advantages of collaborative writing in the writing activity, students can get the better social environment to guide them to catch their goal in writing. Working collaboratively would require students to communicate to each other in the target language.

2.2.3 Teaching Writing by using Collaborative Writing

According to Barkley, et al (2014: 312), there are seven guidelines for teacher in collaborative writing process. The guidelines are as follows;

1. Students from pairs or triads generate ideas together.
2. Students organize their ideas and create an outline.
3. Students divide up the outline, selecting or assigning sections for each student to write initial drafts individually.
4. Teams read first drafts, discuss, and resolve any significant disparities in voice, content, and style.
5. Teams combine individual sections into a single document.

6. Teams revise and edit their work, checking for content and clarity as well as grammar, spelling, and punctuation.
7. After the final edit, teams submit their papers to the teacher for assessment and evaluation.

2.3 Mind Mapping

Mind mapping has many applications in every aspect of life. It is a common technique in the English learning process. It helps the learner to think and remember better, solve the problems, and take actions. It also encourages creativity and flexibility, and help to think outside the box. Mind mapping in writing text is expected can overcome the students' problems in mastering writing skill.

2.3.1 Definition of Mind Mapping

According to Hedge (2005: 58), making a mind map is a strategy for writing down the ideas about the topics and developing ideas as the mind makes associations. Therefore, mind mapping can be an appropriate activity to solve problems related to having lack of ideas. By using mind mapping, people can represent ideas into visualization and graphic forms where one idea is connected to another idea by using branches. Besides he also says that by using mind mapping, it is easy for people to put information into their memory. Mind mapping is highly effective way of getting information in and out of your brain. Mind map is a creative and logical means of note-taking and note-making those literary maps out your ideas.

In relation with writing skill, mind mapping is a technique that is commonly used in pre-writing activity in order to help students to gather ideas of what to write.

Visual mapping (mind mapping) can be defined as a graphic tool which is used to collect, create, manage, and exchange information. It represents information via the spatial organization of concepts/topics, ideas, words, or other items linked to and arranged in a connected pattern around a central concept (Krasnic, 2011: 46). Subsequently, Buzan (2013:9) explains that a mind map allows us to visually record, memorize, connect, and produce information. A mind maps' graphic emphasis works in a way that the brain finds appealing and easy to understand.

Based on the definitions above, it can be concluded that mind mapping can increase students' ability to complete a writing task as their ideas emerge in organized forms. The mind mapping strategy can be used to explore almost any topics in writing and used in every kind of writing such as: narrative, descriptive, recount, persuasive, argumentative, essay etc. students can improve their ideas.

2.3.2 Advantages of Mind Mapping

Krasnic (201: 51-53) mentions several advantages of visual mapping. Some of them are as follows:

1) Use our brain's full range of skills

A visual map is a way of representing relations between ideas, images, or words. Because they are visual as well as verbal, incorporating images as well as words, visual maps play a key role in harnessing the full range of our brain skills in a single, uniquely powerful framework.

2) Overcome information overload

Visual maps require much less time to compose than traditional longhand or even word-processed notes and take less time to read. Furthermore, visual maps place emphasis on key concepts and clarify their organization and associations. As a result, we can process a lot more information better and faster.

3) Increased creativity

Visual maps' flexible structure encourages new ways of thinking about concepts, ideas and allows for personal organization of information.

4) Clear thinking through connections and organization

Visual mapping allows us to understand the relationship between ideas by creating an image map of the connections. These maps enable us to see the connections between ideas we already have, connect new ideas to existing knowledge, and organize ideas in logical structure that allows for future modification. This is the basis for meaningful learning.

5) Problem solving, decision making, and action taking.

Visual mapping can also enhance the problem-solving and decision-making process by generating alternative solutions and options, revealing a previously unseen but appropriate action.

6) Improve memory and understanding

Visual maps are very effective at bringing together the logical left brain and the visual creative right brain to improve memory and productivity. The visual map's ability of linking and layering information makes the user can see the big picture and gain a deeper understanding of a topic.

7) Attractive, interactive, and fun

Visual maps are enjoyable to develop, review, and remember. Because visual maps are attractive and interactive. They maintain interest for much longer than traditional narrative text.

In conclusion, mind mapping technique has some advantages that can help students in the learning process. It enables to improve creativity, to help focus on relevant information, to organize thought and to boost students' motivation in learning. Thus, it can be said that the mind mapping is an essential technique to be implemented in writing lesson.

2.3.3 Teaching Writing by using Mind Mapping

It has been stated before that mind map can give assistance for students to start writing assignments. In fact, many students find writing is difficult, and most of them find getting started the most difficult part of writing. Added to this, Mapman (2013: 23) mentions some benefits of a mind map. First, it enables to help ones in organizing thoughts. Someone frequently has ideas that pop in his head but may not act them since they may just seem like random thought. Mind maps make it possible for people to work through a simple concept and turn it into something that can be executed. Second, mind map can help broaden someone's ideas. It is possible that the idea is not great and is not going to be possible to execute but it does not mean that the idea is useless. People can extend the idea by considering different element and breaking it down into smaller parts. A mind map can be essential in helping extend ideas and make them feasible for execution. Third, it can mobilize whole brain

thinking. Since the mind maps include pictures, words, colors and shapes, it appeals to right and left side of the brain and can stimulate them in tandem.

The procedure of teaching writing by using mind mapping in the classroom is as follow:

- 1) Describing or demonstrating the process to the students
- 2) Presenting the central concept/ material that the students must graph
- 3) Asking the students to brainstorm, writing a list of terms and phrases that express main concepts and supporting details
- 4) Asking the students to start sketching out diagram
- 5) Delivering any necessary suggestions while they are working
- 6) Asking the students to developed the main concept by adding some new ideas and relationship as they construct the map.

Those are procedures of teaching mind mapping that is used in the classroom

2.4 The Procedure of Teaching Writing using Mind Mapping through Collaborative Writing

As previously explained, according to Barkley, et. al (2014; 312), there are seven steps of collaborative writing technique from generating ideas until final editing. Since mind mapping is the easiest way to put information into brain dan take it out from brain, it can help the students to think more creatively to associate ideas more easily, so the researcher will modify collaborative writing technique by using mind mapping in the process of generating and organizing ideas (stage 1 and 2).

The following explanation is the procedure of teaching writing by using mind mapping through collaborative writing.

1. Students from pairs or triads generate ideas together by using Mind Mapping.
2. Students organize their ideas and create an outline by using Mind Mapping.
3. Students divide up the outline, selecting or assigning sections for each student to write initial drafts individually.
4. Teams read first drafts, discuss, and resolve any significant disparities in voice, content, and style.
5. Teams combine individual sections into a single document.
6. Teams revise and edit their work, checking for content and clarity as well as grammar, spelling, and punctuation.
7. After the final edit, teams submit their papers to the teacher for assessment and evaluation.

The chart below is presented to clarify where the mind mapping is inserted in the first and second stages of collaborative writing.

Table. 2.1 Steps of Collaborative Writing and Mind Mapping through Collaborative Writing

No	Collaborative Writing Stages	Mind Mapping through Collaborative Writing	Description
1.	Generating Ideas	Generating Ideas by using mind mapping.	The useful of collaborative writing is it can make the students learn and perform the stages of writing more effectively (Barkley, et.al: 2014). But in fact, the students faced problems in using it especially in the process of generating ideas, developing thought, and putting ideas together (Herwiana:2021 and Hanifah;2018) Based on the problems, it is assumed that the use of Mind mapping in the first and second stages of collaborative writing can overcome students' difficulties, since the mind mapping is a way of helping students to think more creatively and associate ideas more easily (Buzan: 2005)
2.	Organize Ideas and make outline	Organize Ideas and make outline by using mind mapping.	
3.	Write initial draft individually based on outline divided	Write initial draft individually based on outline divided	
4.	Discuss and resolve initial draft	Discuss and resolve initial draft	
5.	Combine individual draft into a single document	Combine individual draft into a single document	
6.	Revise and edit the final draft	Revise and edit the final draft	
7.	Submit the draft	Submit the draft	

2.5 Argumentation Text

There are many kinds of writing, such as descriptive, narrative, recount, procedure, report, argumentation, etc. Based on the syllabus of MAN 1 Metro, argumentation text including the lesson of analytical exposition text that students must be able to write argumentative text with appropriate content, good organization, correct diction, grammar, and mechanics. The analytical exposition text is a text to

elaborate the writer's idea or opinion about phenomenon or issues in surrounding. It is a type of spoken and written text that is intended to persuade the listeners or readers by presenting arguments to analyze and explain 'how' and 'why'. Referring to the syllabus, this research was focused on teaching writing by modified collaborative writing technique in the lesson of analytical exposition. According to Anderson and Anderson (1997), analytical exposition has three components. They are constructing an exposition; a language features an exposition and generic structure which can be explained as follow:

1) Constructing an analytical exposition

In constructing an analytical exposition text, there are three basic steps, the first step is called as an introductory statement that gives the author's point of view and previews the arguments that will follow-in some texts, the opening statements may be attention grabbing. The second step is constructing a series of arguments that aim to convince the audience. Pictures might also be used to help persuade the audience. The last one is constructing a conclusion that sums up the arguments and reinforces the author's point of view.

2) Language features on an analytical exposition text

The language features of analytical exposition consist of three kinds. First, the use of words that shows the author's attitude, or we usually call it as a modality. The second one is the use of words to express feelings, or we usually call it as emotive words. The last one is the use of words to link cause and effect.

3) The generic structure of analytical exposition consists of three main parts:

thesis, arguments, and reiteration. The first part is called as a thesis. The thesis is used for introducing the topic and indicates the writer's position. Besides,

thesis is also used as the outline of the main argument, to be presented. The second part is called as argument. The use of arguments is to restate main argument outlined in preview. It consists of the elaboration, development, and support to each point of argument. The last one is reiteration. It is usually used for restating the writer's position and to conclude the whole argument.

In conclusion, based on the explanation above, the researcher concludes that the analytical exposition text is a kind of text that is used to persuade someone to think about something to be a case. There are three characteristics in the analytical exposition text. they are social function/ purpose, language features, and generic structure or text organization.

2.6 Personality Styles

There are many different definitions of personality which are articulated by practitioners in SLA and Psychology considering the diversity of psychological approaches aroused in the personality studies. However, individual differences, behavioural dimensions and traits have been the basic notions in the definition of personality. Hence, this study used the definition of personality from behaviouristic approach since it attempted to see the effect of students' behaviour in collaborative writing which may be influenced by personality preference on students writing ability. Eysenck (1964, as cited in Abali, 2006) defines personality as the characteristics and qualities of a person which are seen as a whole and which differentiate him or her from other people.

A more detail definition explained by Richard & Schmidt (2010) that personality defines as “those aspects of an individual’s behaviour, attitude, belief, thoughts, actions, and feelings which are seen as typical and distinctive of that person and recognized as such by that person and others”. from those definition, it can be concluded that personality is person’s character that influences what to do to other people or his/her environment and it differs from others.

There is a consensus that personality might generally affect learner’s performance in mastering language. Harmer (2004:85) states that when we realized that students were composed of individuals, we had to start thinking about how to respond them individually by considering their characteristics. Brown (2007:154) explains that understanding how human beings feel, respond, believe and value is an exceedingly important aspect of a theory of second language acquisition. He also stated that extroversion and introversion are also potentially important factor in the second language acquisition. Furthermore, Dornyei and Ryan (2015) as cited in Winarti et.al., (2021) defines that personality types are thought to be an essential component in influencing students’ behavior, which influences the learning process. This is reasonable since a class of student with different types of personality will respond or perform differently towards certain condition, environment, and treatment they are dealing with. Personality also might affect on how learners maintain their strategy in learning a language. Therefore, considering personality in this research is greatly important since it will affect the learning outcome.

Eysenck (1964) explained types of personality by using this following figure:

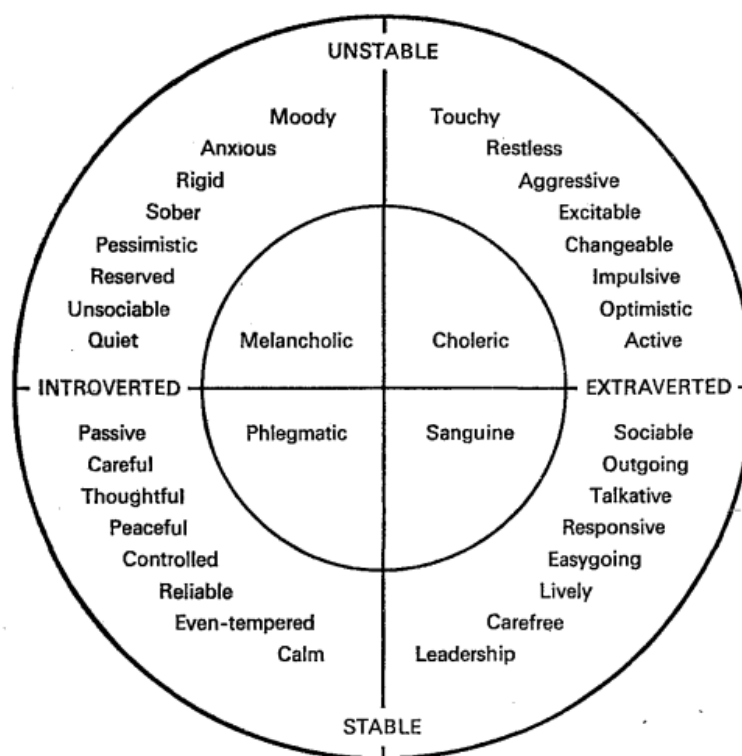


Figure. 2.1 Types of Personality (Eysenck, 1964)

Furthermore, He explained the two dimensions of personality. They are extroversion-introversion, and emotional stability – instability. He defined those into four quadrants. These are made up of:

1. *Sanguine* is one of types in extrovert people who have stable emotion, such as sociable, outgoing, talkative, responsive, easy going, lively, carefree, and leadership.
2. *Choleric* is one of the types in extrovert people who have unstable emotional such as touchy, restless, excitable, changeable, and impulsive.

3. *Phlegmatic* is one of the types in introvert people who have stable emotional, such as calm, even-tempered, reliable, controlled, peaceful, thoughtful, careful, and passive.
4. *Melancholic* is one of the types in introvert people who have unstable emotional, such as quiet, reserved, unsociable, pessimistic, and moody.

More clearly, it can be said that Sanguine and Choleric are parts of extrovert characteristics. Phlegmatic and Melancholic are parts of introvert characteristics. This research is mainly focused on two types of personality: extrovert and introvert since these types of personality were assumed to influence students' preference to interact with other students or tend to prefer working individually. Below is a further explanation regarding extrovert and introvert characteristics.

2.6.1 Extrovert

According to Eysenck (1964), people with extrovert characteristics are sociable, like parties, has many friends, needs to have people to talk to, and do not like reading or studying by themselves. They crave excitement, take chances, often stick their neck out, act on the spur of the moment, and are generally impulsive people. They are fond of practical jokes, always have a ready answer, and generally like change. They are also carefree, easy-going, optimistic, and like to 'laugh and be merry'. They prefer to keep moving and doing things, tends to be aggressive and lose their temper quickly. Altogether their feelings are not kept under tight control, and they are not always reliable person.

2.6.2 Introvert

Introversion is exactly the opposite of extroversion. Eysenck (1964) also explains that people with introvert characteristics are quiet, retiring sort of person, introspective, fond books rather than people. They are reserved and distant except to intimate friends. They tend to plan ahead, look before leap, and distrust the impulse of the moment. They do not like excitement, take matters of everyday life with proper seriousness, and like a well-ordered mode of life. They keep their feelings under close control, seldom behave in an aggressive manner, and do not lose their temper easily. They are reliable, somewhat pessimistic, and place great value on ethical standards.

2.7 Theoretical Assumptions

From the literature review above, the researcher comes to the assumption that there is a significance difference of students' writing ability who are taught by collaborative writing and those who are taught by Mind Mapping through Collaborative Writing. The objective of teaching writing is that students can produce written form of their ideas and thoughts correctly based on writing aspects. In Collaborative writing, students are given the opportunity to collaborate with peers in the form of group discussions to solve problems in writing. It affords students the opportunity to give and receive immediate feedback on language. This process will finally help the students when they do the process individually. While in the process of mind mapping, students are given a media such as pictures and colourful line to ease the students organize their ideas and arrange it into a good content of a text. So, the researcher believes that this modified mind mapping

through collaborative writing can affect students' aspect of writing in term of content, organization, vocabulary, language use, and mechanics. The researcher also believes that teaching writing using modified collaborative writing create a significant difference, especially for extrovert and introvert students. As explained before that extroverts learn best when they can work with friends and learn by trying something themselves instead of watching or listening to others. meanwhile, introvert students like self-study, listening to other people talk and think about information in private. The researcher assumed that the characters of each of these personalities will have different achievement in writing ability.

Based on the assumption above, the researcher believes that one of the strategies between collaborative writing and Mind Mapping have a good impact for the students' achievement within their personality. Besides, the strategies have different way to be used in teaching writing in the classroom. Therefore, the writer assumes that one of those strategies is easier to teach writing and improve writing ability while other is more complicated between introvert and extrovert students.

Briefly, those are the explanation about this chapter which are about concept of writing, aspects and process of writing, collaborative writing technique, mind mapping, the procedures of teaching writing using modified collaborative writing, argumentation text, personal styles, and theoretical assumption of the research.

2.8 Hypothesis

Based on the theories and theoretical assumptions, the writer formulated the hypothesis as follows:

- 1) The students' writing ability who are taught by Mind Mapping through Collaborative Writing is higher than those who are taught by collaborative writing.
- 2) There is significant difference of students' writing ability of extrovert and introvert. The extrovert students have better score than the introvert students.
- 3) There is interaction between strategies and students' personality styles on writing ability.

III. RESEARCH METHODS

This chapter describes the method of this research that cover research design, data collecting technique, data analysis, research procedure and hypothesis testing.

3.1 Research Design

Hatch and Farhady (1982:1) explained that research as a systematic approach to finding answers to questions. Below is an explanation of research design in this research.

3.1.1 Research Method.

The research was quantitative study. The design of this research was factorial design. According to Hatch & Farhady (1982:28), factorial design was those where more than one independent variable is involved in the design. There was more than one independent variable considered and the variables may have one or many levels. Setiyadi (2018:126) explained that factorial design is the addition of control variables to a design to make it more complex. Control variables that are often used in teaching foreign languages are gender, mastery level of English either beginner or intermediate, mastery of languages such as monolingual or multilingual, and others.

As seen that there were two independent variables from the techniques (collaborative writing and mind mapping) and the personality types (extrovert and introvert), and since factorial design was the common way to study the effect of two or more independent variables and focused on the design that had only two independent variables that combined all levels of the other independent variables to produce all possible conditions, so this research was suitable with the factorial design.

In this research, the design included two variables and each variable had two types. The first independent variables were Collaborative writing and mind mapping through Collaborative Writing, and the second is personality styles with its two types, they were extrovert and introvert personalities. This design called as 2x2 (two by two) factorial design because since there were two independent variables, each of which had two types. One way to represent a factorial design was with a design table. The table below represent a 2x2 factorial design in which two independent variables are the type of the technique in teaching writing (collaborative writing and mind mapping) and personality styles of the students (extrovert and introvert).

Table 3.1 Research design in table

<div style="display: flex; align-items: center; justify-content: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Variable Technique (A)</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Variable Personality (B)</div> </div>		Strategies	
		Collaborative writing (A1)	Mind Mapping through Collaborative Writing (A2)
Personality	Introvert (B1)	A1B1	A2B1
	Extrovert (B2)	A1B2	A2B2

In this research design two groups of participants are pretested and then post-tested after the treatments have been administered. The pretest is given to the students in order to measure their writing entry point and to make sure they are homogeneous before they are given two treatments of the application of collaborative writing and Mind mapping for teaching writing. Later, the post-test is given to measure how far the improvement of their ability in writing after those treatments.

3.1.2 Population and Sample

The population in this research were the first-grade students of MAN 1 Metro which consist of 10 classes. Based on pra-survey result, it can be found that there is still a problem in the school especially in process of writing. Sometimes the teacher gets confused how to teach the students effectively in writing. It can also be seen from the teacher assessment documents for writing activities which shows that most students' scores are low. In determining the sample, the researcher used probability sampling in the form of simple random sampling. According to Setiyadi (2018:33) by applying probability sampling, the possibility of obtaining the data with normal distribution is higher and by using simple random sampling, everyone in the population have the same opportunity to be selected or used as a research sample. The research takes two classes as the sample. The first class was X.3 which consists of 37 students as the experimental class and the second class was X.6 which also consists of 37 students as the control class.

3.2 Data Collecting Technique

Research is aimed at gaining the data on the students' writing score before the treatment (pretest) and after the treatment (post-test) related to the students' personality styles (extrovert and introvert). Therefore, personality questionnaires and writing test are techniques for collecting data in this research. The description of the questionnaire and writing test can be seen as follows:

3.2.1 Research Instrument

The data of this research is gained by two instruments:

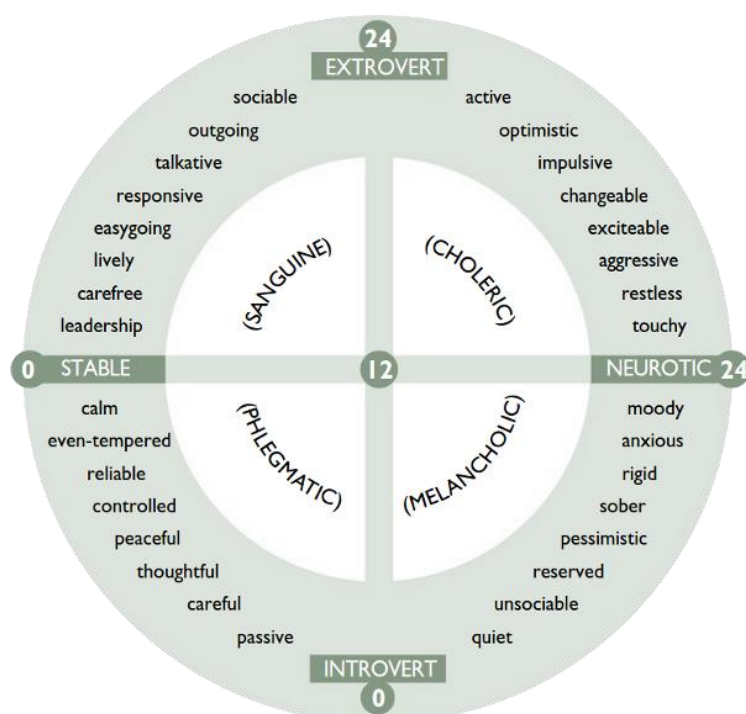
1. Personality Questionnaire

A questionnaire is form that used during conducting research that should be completed by participant and return to the researcher. The participant chooses answers to questions and supplies basic personal or demographic information (Creswell, 2012:382). Moreover, Setiyadi (2018:46) explains that questionnaire is an instrument which is very effective to measure aspects and variables associated with personality, psychology, or sociology aspects.

In this research, the researcher adopts the questions item of questionnaire in the instrument from the Eysenk's Personality Inventory (EPI), (1964). The questionnaire consists of 57 questions. It uses close-ended questions which restricting respondents by choosing answers with yes or no. (*See appendix I*). The questionnaire is completed with Indonesian to minimize miss interpretation by the students. There are 3 scores in every test. The traits measured are extrovert-introvert and Neuroticism, as follow:

Table 3.2 Eysenck's Personality Inventory (EPI) Scoring System

No	Score	Description
1.	The 'lie score' is out of 9	It measures how socially desirable the students are trying to be in their answers. Those who score 5 or more in this scale are probably trying to make themselves look good and are not being totally honest in their responses.
2.	The 'E score' is out of 24	It measures how much of an extrovert and introvert they are.
3.	The 'N score' is out of 24	It measures how neurotic they are.

Figure. 3.1 Graph of the personality trait

In this research, the researcher only focuses in extrovert and introvert personality styles score. To interpret the scores, E score is plotted on a graph from which can be read as the personality. The nearer the outside of the circle, the more marked as the personality traits. The questionnaire is done in the first time after the researcher gave pre-test to the students. It is done to know their personality style whether it is extrovert or introvert.

2. Writing Test

The other instrument of this research is writing test. The researcher conducts the writing test for the pre-test and post-test for control and experimental class (*see appendixes 3 and 4*). The purpose of the test is for gaining the students' argumentation text writing scores. The test is in written form and the materials that will be tested based on the curriculum used in the school. The pre-test is conducted in control and experimental class to know how far the competence of students in writing argumentation text before the treatment. While the post-test is given to the control and experimental class after the treatment to know whether there is any improvement of students writing ability. In order to know whether there is a significance difference in students' writing ability between control and experimental class, the result of the post-test in control and experimental class are compared.

3.2.2 Validity and Reliability of the Instrument

A good test must be valid and reliable. According to Setiyadi (2018:29), the purpose of a research is to get results in accordance with the facts. To achieve this goal, an appropriate measuring instrument is needed so that the data collected is authentic

and as desired. A good measuring instrument must meet the aspects of reliability and validity. Both aspects must be fulfilled so that the research can produce more meaningful findings.

1) Validity of instruments

Heaton (1991:159-161) explained that Validity of a test is the extent to which it measures what it is supposed to measure and nothing else. In this research, the researcher used Content and Construct validity. The Content validity was concerned with whether the test is sufficiently representative and comprehensive for the test. According to Hatch and Farhady (1982:251), since the content validity is the extent to which a test measures a representative sample of subject matter content. Meanwhile, construct validity concerns on the certain specific characteristics in accordance with a theory of language behaviour and learning. Therefore, the items in the instrument used in the research should be correlated to the theory of language skill and the technique implemented in the research.

The content validity of the questionnaire is based on the objective of the research. The objective of the questionnaire was to classify the students' personality into extrovert and introvert students. Meanwhile, the construct validity of the questionnaire. The construct validity of Questionnaire is based on Eysenck's Personality Inventory (EPI), (1964).

In addition, to get the content validity of the writing test, the material and the test are composed based on the syllabus taken from "2013 English Curriculum"

for the first-grade students of MAN 1 Metro in 2023/2024 academic year. The materials in the treatments are in line with the syllabus that is concerning to comprehending the text. To assess students' comprehension, writing activity is followed. Then, the tests given also are in line with the material that they are asked to compose a text, based on the basic competence as follows:

Table 3.3 Basic Competence

Kompetensi Inti 3 (Pengetahuan) memahami, menerapkan, dan menganalisis pengetahuan faktual, konseptual, prosedural, dan metakognitif berdasarkan rasa ingin tahunya tentang ilmu pengetahuan, teknologi, seni, budaya, dan humaniora dengan wawasan kemanusiaan, kebangsaan, kenegaraan, dan peradaban terkait penyebab fenomena dan kejadian, serta menerapkan pengetahuan prosedural pada bidang kajian yang spesifik sesuai dengan bakat dan minatnya untuk memecahkan masalah	
Kompetensi Inti 4 (Keterampilan) mengolah, menalar, dan menyaji dalam ranah konkret dan ranah abstrak terkait dengan pengembangan dari yang dipelajarinya di sekolah secara mandiri, bertindak secara efektif dan kreatif, serta mampu menggunakan metoda sesuai kaidah keilmuan	
Kompetensi Dasar (Pengetahuan)	Kompetensi Dasar (Keterampilan)
3.4 Membedakan fungsi sosial, struktur teks, dan unsur kebahasaan beberapa teks eksposisi analitis lisan dan tulis dengan memberi dan meminta informasi terkait isu aktual, sesuai dengan konteks penggunaannya.	4.4 Teks eksposisi analitis 4.4.1 Menangkap makna secara kontekstual terkait fungsi sosial, struktur teks, dan unsur kebahasaan teks eksposisi analitis lisan dan tulis, terkait isu aktual. 4.4.2 menyusun teks eksposisi analitis tulis, terkait isu aktual, dengan memperhatikan fungsi sosial, struktur teks, dan unsur kebahasaan, secara benar dan sesuai konteks.

The Construct validity of writing test in this research was based on the theories of aspects of writing by Heaton (1991). The students must compose a text by paying attention to writing aspects they have learnt within the treatments, that is content, organization, vocabulary, language use, Mechanism (*see appendixes 2*).

In order to measure construct validity of writing test, inter-rater analysis is used to make it more valid.

2) Reliability of Instruments

Heaton (1991:162) stated that reliability is a necessary characteristic of any good test: for it to be valid at all, a test must first be reliable as a measuring instrument. If the test is administered to the same candidates on different occasions (with no language practice work taking place between these occasions), then, to the extent that it produces differing results, it is not reliable. In line with the statement, Setiyadi (2018:13) also clarified that reliability is the consistency of a measuring instrument, or the extent to which the measuring instrument can measure same subject at different times but shows relatively the same results. If a measuring instrument cannot provide relatively the same results at different times from different subject, the measuring instrument has low reliability.

Since the questionnaire is adopted from Eysenck's Personality Inventory (EPI) (1964), Then the reliability research studies that have been conducted on that instrument is applied in this research. Meanwhile, in testing the reliability of the writing test, inter-rater reliability was used in this research. In this case, the first rater is the researcher herself, and the second rater is the English teacher in that school. The following is table of the interrater score.

Table 3.4 Scoring Table of Interrater

No	Name of Students	R1						R2						M
		A1	A2	A3	A4	A5	Total Score	A1	A2	A3	A4	A5	Total Score	

R1 : Rater 1 *A2* : Organization *A5* : Mechanism
R2 : Rater 2 *A3* : Vocabulary *M* : Mean
A1 : Content *A4* : Language Use

After the score is obtained from interrater, Statistical calculation was done by using SPSS program version 26.0. by using Pearson product moment. The result is as follow:

Table 3.5 Interrater reliability Statistics of pre-test writing score

Correlations			
		PretestR1	PretestR2
PretestR1	Pearson Correlation	1	.863**
	Sig. (2-tailed)		0.000
	N	74	74
PretestR2	Pearson Correlation	.863**	1
	Sig. (2-tailed)	0.000	
	N	74	74
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 3.6 Interrater reliability Statistics of post-test writing score

Correlations			
		PosttestR1	PosttestR2
PosttestR1	Pearson Correlation	1	.837**
	Sig. (2-tailed)		0.000
	N	74	74
PosttestR2	Pearson Correlation	.837**	1
	Sig. (2-tailed)	0.000	
	N	74	74
**. Correlation is significant at the 0.01 level (2-tailed).			

The results shows that the pearson correlation score in writing pretest is 0.863 and 0.837 in writing post-test. Moreover, Setiyadi (2018) explains the level of standard reliability as follow:

Table 3.7 Level of Standard Reliability

Score	Standard
0.00 – 0.20	Very low Reliability
0.20 – 0.40	Low Reliability
0.40 – 0.60	Medium Reliability
0.60 – 0.80	High Reliability
0.80 – 1.00	Very high Reliability

(Setiyadi: 2018:145)

Based on the level of standard reliability of Setiyadi (2018), if the score is between 0.60 – 0.80, it has high reliability.

3.2.3 Criteria for Scoring Students' Writing Ability.

The consideration of criteria for evaluating students' argumentation text writing ability is based on the ESL Composition Profile by Heaton (1991:13). There are five aspects to be tested: Content, Organization, Vocabulary, Language Use and Mechanism. In evaluating the students' writing scores, the researcher analyses the result of students' text writing. pre-test and post-test text writing result of the experimental group are analysed to make sure that the treatment that have been given impact the students' ability. The criteria of scoring system are based on the rating sheet from Heaton (1991:141). which concerns to the five aspects of writing. they are Content, Organization, Vocabulary, Language Use and Mechanism (*see appendix 2*).

3.3 Data analysis

In attempt to investigate the difference of collaborative writing and mind mapping technique between introvert and extrovert students, the data analysis is described as follow:

- 1) Tabulating the score of the questionnaire and writing test
- 2) Analyzing the data

The tabulated data were analysed by using non-parametric statistic method in the form of Mann Whitney U-Test and Chi-Square for Independence. Setiyadi (2018: 178) stated that Mann Whitney U-Test can be used in non-parametric test to compare two different group. Furthermore, Chi-Square for Independence can be used if we have two categorial variables and we want to analyse the correlation between the two categorial variables (Setiyadi 2018: 175). The analysis is done by using SPSS 26.0 computer program. Following are formulas of the tests;

Formula of Mann Whitney U-Test (Sutiarso:2011)

Where,

$$U_2 = n_1 \cdot n_2 + \frac{n_1(n_1+1)}{2} - R_1$$

U1 : Arithmetic Test
n : Total of data
R : Rank of data

Formula of Chi Square for Indepen Where,

$$X^2 = \sum \frac{(O-E)^2}{E}$$

X^2 : The chi-square test statistic
 \sum : The summation operator
O : The observed Frequency
E : The expected frequency

3.4 Research Procedures

The researcher uses the following procedures in order to collect the data:

1. Determining the research problem

The main concern of this research problem is finding out whether there is a difference on students' writing ability after being taught by Collaborative writing and Mind Mapping through Collaborative Writing, introvert and extrovert students' writing ability, and interaction between the strategies dan the personalities.

2. Determining population and sample

The population of this research is the second-grade students of MAN 1 Metro in 2023/2024 academic year. The sample of this research is two classes, X.6 as control class and X.6 as experimental class.

3. Selecting the material

The material of this research is argumentation text in the form of analytical exposition. It is because writing argumentation text is the target skill which must be mastered by students at the second-grade senior high school students based on the syllabus of curriculum 2013.

4. Administering writing pretest and personality style questionnaire before the treatments.

Before conducting the treatments, there is a writing pretest for students in experimental and control class. The students were instructed to write an argumentation text in the form of analytical exposition individually based on the topic given. Furthermore, the results of writing pretest were scored by two raters. The first is the researcher and the second is one of lecturers in MAN 1

Metro. Moreover, the students in experimental class are also required to answers the questionnaires about personality styles after writing pretest was conducted. It is used to differ extrovert and introvert students.

5. Conducting Treatment.

There are two different treatments in this research. The first treatment is original collaborative technique for control class and the second treatment is Mind Mapping through Collaborative writing for experimental class. The treatments were given in three meetings.

6. Administering the post-test

The Post-test is conducted after the treatments both in control and experimental classes. This test is aimed to find out the students' writing ability after having the treatment. In this test, the students are asked to compose an argumentation writing text based on the available topic.

7. Analyzing the data

In this step, the researcher makes up the data of the questionnaire which contains student' personality style. The result differs the students into introvert and extrovert. The researcher also examines the students' writing based on scoring rubric from Heaton (1981) in terms of content, organization, vocabulary, language use, and Mechanism. In analyzing the result, the researcher analyze it by using SPSS 26.0 computer program. The researcher analyzed the data by using Mann Whitney U-Test and Chi-Square for Independence.

8. Drawing conclusion.

Lastly, the researcher made conclusion based on the result of the data analysis.

Those eight things, starting from determining the research problem until drawing conclusion are the whole procedures in administering this research.

3.5 Hypotheses Testing

Hypothesis testing was used to prove whether the proposes hypothesis is accepted or not. In this research, there were two hypotheses based on the research questions. To test the hypothesis, Social Sciences (SPSS) windows version 26.0 was used. the criteria for accepting the hypothesis are as follows:

1. H_0 is accepted if the T-value is lower than T-Table
2. H_1 is accepted if the T-value is higher than T-table

Related to the research questions of this research, the hypotheses are:

Research Question 1:

H_{i1} : There is a significant difference between students' writing ability between students who are taught by Collaborative Writing and those who are taught by Mind Mapping through collaborative writing.

H_{01} : There is no significant difference between students' writing ability between students who are taught by Collaborative Writing and those who are taught by Mind Mapping through collaborative writing.

Research Questions 2:

H_{i2} : There is a significant difference of students' writing ability of extrovert and introvert students.

H₀₂ : There is no significant difference of students' writing ability of extrovert and introvert students.

Research Questions 3:

H_{i3} : There is interaction between those two strategies and students' personality styles on writing ability.

H₀₃ : There is no interaction between those two strategies and students' personality styles on writing ability.

Those are the discussion of this chapter which consist of research design, data collecting technique, data analysis, research procedure and hypothesis testing.

V. CONCLUSION AND SUGGESTION

This chapter describes the conclusion of the research report and suggestion for the next researchers who want to conduct research related to Collaborative Writing, Mind Mapping through Collaborative Writing, and personality traits. It is also for the English teachers who want to use the method in teaching writing process.

5.1 Conclusion

Based on the result and discussion of the data analysis in this research, the researcher makes conclusion as follow:

- a. Based on the result and discussion, it can be concluded that there is a significant different between students' writing ability between students who are taught by Collaborative Writing and those who are taught by Mind Mapping through collaborative writing. It is found that Mind Mapping through Collaborative Writing is better than Collaborative Writing itself to apply in teaching and learning process in the term of increasing students' writing achievement. The use of Mind Mapping in the steps of Collaborative Writing will help the students to generate and improve ideas effectively, while the whole process of collaborative writing gives the students the opportunity to have interaction among the students and it will lead themselves improving their writing skill from each other's.

- b. Based on the result and discussion, it can be concluded that there is no significant different of students' writing ability of extrovert and introvert students. in fact, the characteristics of the extrovert and introvert personality do not determine the successful of students' writing achievement. The students both extrovert and introvert have their own way to adapt to learning environment. That is why although they are taught by different techniques, they still get almost the same average result in writing achievement.
- c. Based on the result and discussion, it can be concluded that there is no interaction between the two strategies (Collaborative Writing and Mind Mapping through Collaborative Writing) and students' personality styles (Extrovert and Introvert) on writing ability. Both extrovert and introvert students can follow the teaching and learning process well, whether using Collaborative Writing or Mind Mapping through Collaborative Writing strategy.

5.2 Suggestion

By considering the conclusion above, the researcher proposes some suggestions as follows:

- a. Suggestion for English Teacher
 - 1. Mind Mapping through Collaborative Writing is a good strategy to overcome students' difficulties in increasing writing achievement. So, I suggest the English teacher to implement this strategy in the writing class.

2. The use of Mind Mapping through Collaborative writing in writing activity requires more time to complete. Most likely, students will focus more on making mind maps. So, the teacher should be aware of the time and guide the students to be focus more in writing process than in making mind mapping.
 3. Mind Mapping can help the students improve their creativity in writing. In writing process, teacher might try to give more topics to be chosen without limiting it to just one topic.
- b. Suggestion for Further Researcher
1. This research only focused on extrovert and introvert personality, meanwhile there are parts in each those personality. Sanguine and choleric are parts of extrovert personality and phlegmatic and melancholic are parts of introvert personality. For getting specific result and discussion, I suggest for the next researcher to focus on each type of those personality.
 2. This research is focused on argumentation text, in the form of analytical exposition text. The next researcher can investigate another type of writing.

Briefly, those are the conclusion of this research and the suggestion for English teacher who want to implement Mind Mapping through Collaborative Writing in teaching writing, and for further researchers who want to investigate the strategy on their research.

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