AN UNDERGRADUATE THESIS

THE INFLUENCE OF USING CONCEPT MAPPING STRATEGY ON STUDENTS' GRAMMATICAL COHESION IN ESSAY WRITING AT THE ELEVENTH GRADE OF SMA N 2 METRO

By :
ROSITA ARYANI
STUDENT. ID: 13108337

Tarbiyah and Teacher Training Faculty
English Education Department

THE STATE INSTITUTE FOR ISLAMIC STUDIES OF METRO
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By :
ROSITA ARYANI
STUDENT. ID : 13108337

Tarbiyah and Teacher Training Faculty
English Education Department

Sponsor   : Drs. Kuryani Utih, M.Pd
Co-Sponsor : Ahmad Subhan Roza, M.Pd

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ABSTRACT

BY
ROSITA ARYANI

The purpose of this research is to know whether there is any positive and significant influence of using concept mapping strategy on students' grammatical cohesion in essay writing at eleventh grade of SMAN 2 Metro. This research was quantitative research designed by pre-experimental frame which was done in one class chosen by purposive cluster sampling. At first, the researcher gave pretest to measure students' background knowledge continued by giving treatment of concept mapping strategy. At last, the researcher gave postest to see whether there was any positive and significant influence by using that strategy.

The result of this research revealed that concept mapping strategy had positive and significant influence on students' grammatical cohesion in essay writing at the eleventh grade of SMAN 2 Metro. It was proved by the mean of students' score in prestest and posttest. The mean of the score in pretest was 66 meanwhile the mean of the score in posttest was 76 which indicated that concept mapping strategy enabled students to elaborate their thoughts and notions focused on grammatical cohesion that made their essay readable and acceptable.

PENGARUH PENGGUNAAN STRATEGI *CONCEPT MAPPING* TERHADAP KOHESI GRAMATIKAL DALAM MENULIS ESAI PADA SISWA KELAS SEBELAS SMAN 2 METRO

ABSTRAK

OLEH
ROSITA ARYANI

Tujuan penelitian ini ialah untuk mengetahui apakah ada pengaruh yang positif dan signifikan dari penggunaan strategi *concept* mapping terhadap kohesi gramatikal siswa dalam menulis esay di kelas XI SMAN 2 Metro. Penelitian ini ialah penelitian kuantitatif dengan desain pre-eksperimental yang dilakukan dalam satu kelas berdasarkan teknik sampling kluster purposif. Diawal penelitian, peneliti memberikan pretes untuk mengukur kemampuan dasar siswa yang dilanjutkan dengan pemberian treatment berupa strategi *concept mapping*. Di akhir penelitian, peneliti memberikan postes untuk melihat apakah ada pengaruh yang positif dan signifikan dari penggunaan strategi tersebut. Dalam mengumpulkan data, peneliti menggunakan tes, observasi dan dokumentasi.

Hasil dari penelitian ini menunjukkan bahwa strategi *concept mapping* memiliki pengaruh yang positif dan signifikan terhadap kohesi gramatikal dalam menulis esai siswa kelas XI SMAN 2 Metro. Hal ini dibuktikan dengan nilai rata-rata siswa dimulai dari pretes menuju postes. Nilai rata-rata pada saat pretes adalah 66 sedangkan nilai rata-rata pada saat postes adalah 76. Sesuai dengan nilai $t_{observed}$ yakni $t_{observed} > t_{table}$ (2.045 < 4.951 > 2.756) yang mengindikasikan bahwa strategi *concept mapping* membantu siswa untuk mengelaborasi pemikiran dan gagasan mereka dengan memfokuskan kepada kohesi gramatikal yang membuat esai siswa kohesif dan bersinergi.

MOTTO

وَلَمَّا بَلَغَ أَشُدَّهُۥٓ ءَاتَيْنَٰهُ حُكْمًا وَعِلْمًا ۚ وَكَذَٰلِكَ نَجْزِى ٱلْمُحْسِنِينَ ﴿٢٢﴾

And when he had attained his maturity, We gave him wisdom and knowledge: and

thus do We reward those who do good.

(Q.S Yusuf, Verse 22)

The only thing that stands between you and your dream is the will to try and

the belief that it's actually possible.

(Joel Brown)

DEDICATION PAGE

I truly dedicate this undergraduate thesis to:

My beloved parents, Mr. Ahmad Riady Abdullah and Mrs. Dewi Ningsih who always support me by their endless love

My beloved almamater of The State Institute for Islamic Studies of Metro

ACKNOWLEDGEMENT

All praise is due to Allah, The Lord of the worlds, the One Who sustains the heavens and earths. Director of all that is created, Who sent the Messengers to rational beings, to guide them and explain the religious laws with clear proofs and undeniable arguments. We bear witness that our leader, Muhammad (pbuh) is His servant and messenger, the best of all creation. May the peace and blessings of Allah be upon him, his families, his friends and the rest of righteous.

First of all, the researcher thank to Allah which because of His blessings, the researcher can complete this undergraduate thesis entitled "The Influence of Using Concept Mapping Strategy on Students' Grammatical Cohesion in Essay Writing at The Eleventh Grade of SMAN 2 Metro".

Secondly, the researcher would like to express her sincere gratitude to those who has invloved in the process of composing this undergraduate thesis. The biggest thank goes to her parents who keep supporting her in such intangible ways. The best thank is also given to both supervisors: Drs. Kuryani Utih, M.Pd and Ahmad Subhan Roza, M.Pd. All of them have a significant role in giving aid and guidance in the process of compiling this undergraduate thesis.

The last, may this undergraduate thesis be some benefits for all the readers in general and for all the knowledge seekers in particular.

Metro,   Sept 2017
The Researcher

Rosita Aryani
SRN.13108337

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CHAPTER I

INTRODUCTION

A. Background of The Study

Writing is the interpretation of human thoughts and ideas in the shape of graphic and signs. As mankind, our lives cannot be separated from writing, not only to communicate with other people, but also to entertain and acomplish certain goals. Writing, as one of the compulsory subjects in Indonesia seems to be less progressive. This may be caused by the skill of writing cannot be possessed automatically, but it needs much more time to sharpen. Meanwhile, writing is one of productive skills besides speaking. Not all people who master speaking are able to pour out their ideas and notions in the form of written, so that writing is going to be potential ability as a concrete figure for developing knowledge. Not only to produce job requirement letter but also to generate ideas in research, education, commerce and technology. To be known, writing is nearly impossible to be mastered all of sudden, it needs practice and reinforcement in each process to own.

As known, essay writing is one of the prerequisite lesson in each level of education. Not only in English, but also in other languages exist in Indonesian curriculum. Essay writing is a piece of writing that contains certain paragraphs long, united by one topic, with orderly structured

sentences. What makes throughout sentences run well, is something – then so called – cohesion.

Moreover, cohesion is the essential part of essay writing. Cohesion occurs when the interpretation of the context is dependent one another. One kind of cohesion, called grammatical cohesion, describes text conectedness in terms of reference, substitution, ellipsis, and conjunction. Reference is two linguistic elements related in what they refer to. Substitution is a linguistic element which is not repeated but is replaced by a substitution item. Further, ellipsis is one of the identical linguistic element that is omitted, and conjunction is a semantic relation which is explicitly marked.

On the other hand, grammatical cohesion in essay writing, at the eleventh grade of SMAN 2 Metro, needed more attention from the teacher. The researcher found that most of the students of the Eleventh Grade of SMAN 2 Metro encountered problems in grammatical cohesion of essay writing. Some of the students did not repeat the reference, for instance *My friends* is the key noun whereas *they* is the reference of, but the students used *he* instead. In some cases, the students used reference *that* to refer to the plural things as *the cats* whereby *those* had to be used.

Moreover, the researcher identified that in writing an essay, most students did not use conjunctions to relate certain paragraphs. The use of conjunctions such as *moreover, furthermore, so that, then* is nearly impossible to find in their essay. Several students even used the conjunction

and to relate comparative clauses. Regarded to the data pre survey that the researcher had conducted on October 31, 2016 revealed the figure as follows:

Table 1:
The result of pre survey of XI IPA 2 based on their scores in grammatical cohesion in essay writing with MMC 78

No	Result	Students	Explanation
1	<78	25	Incomplete
2	≥78	5	Complete
Total		30	

Source: Documentation of English test taken on Monday, October 31, 2016

Based on the result of the test above, the researcher assumed that most of students at eleventh grade encountered problems in essay writing. The skill to compose an essay was still poor because their scores in writing test were under MMC (Minum Mastery Criteria). This result was identified when the researcher did the preliminary survey. Not only about grammatical cohesion, the researcher found that most of the students faced difficulty to find the ideas and develop the notions in writing process. Then, most of the students were difficult to find vocabularies that fit to the context of essay. It might be caused by the lack of vocabularies. Besides, the students encountered problem when they constructed sentences grammatically as well as they had difficulty to write certain words correctly. The researcher also found that students were confused to use cohesive ties and unify the essay coherently by using conjunctions.

Further, Concept Mapping as one of a number of strategies helped the students to organize their notions and ideas. Concept Mapping provided the students to think logically and orderly in determining the ideas they want to write. It also helped them to erase unrelated notions that might appear. The

clear mapping might help students to avoid misconceptions made by themselves. The graphic illustration offered the students to elaborate their thoughts. The students might think about one key word, and by using concept mapping, they might dig up their thoughts more and more in the frame of logical order. The flexibility of Concept Mapping enabled students to lose what they think is not logic to insert in their essay and to fix several problems encountered by the students. Moreover, the researcher asked them to make Concept Mapping before they wrote an essay.

Therefore, the researcher conducted a research entitled, "The Influence of Using Concept Mapping Strategy on Students' Grammatical Cohesion in Essay Writing at The Eleventh Grade of SMAN 2."

B. Problem Identification

In this research, the researcher identified certain problems related to essay writing as follows:

1. Most of the students faced difficulty in grammatical cohesion such as, reference, substitution, ellipsis and conjunction.

2. Most of the students were difficult to unify their ideas coherently.

3. Most of the students faced difficulty to elaborate the ideas and develop the notions in writing process.

4. Most of the students faced difficulty to find appropriate vocabularies.

5. Most of the students encountered problem in constructing grammatically correct sentences.

6. Most of the students were difficult to write certain words correctly.

C. Problem Limitation

Based on the problem identification that had been detected above, the researcher limited the problem to the students' difficulty in grammatical cohesion in essay writing.

D. Problem Formulation

In this research, the researcher formulated the problem as follows:
"Is there any positive and significant influence of using Concept Mapping Strategy on Students' Grammatical Cohesion in Essay Writing at The Eleventh Grade of SMAN 2 Metro?"

E. Objective and Benefits of the Research

1. Objective of the Research

The main purpose of this research is to know whether there is any positive and significant influence of using Concept Mapping Strategy on Students' Grammatical Cohesion in Essay Writing at The Eleventh Grade of SMAN 2 Metro.

2. Benefits of the Research

Moreover, this research gave certain information about Concept Mapping Strategy to:

1. Students

   Through this research, it is hoped that the students were able to create a cohesive and coherent essay by using concept mapping so that it would be well-constructed.

2. Teachers

   Hopefully this research would give contribution as one of the creative strategies intended to the teachers in solving problems in the class.

3. Headmaster

   From this research, it is hoped that the headmaster could introduce this strategy to all teachers to be applied in the classroom, not only in the English subect but also in other kinds of subjects.

4. Other researchers

   This research could be reference for the other researchers to the importance of developing knowledge.

CHAPTER II

THEORETICAL REVIEW

A. The Concept of Essay Writing

1. The Definition of Writing

Writing is the symbolic representation of language through the use of graphic signs[1]. Writing is the activity of realizing the ideas and notions into the real pieces of graphic signs. Further, writing has always been used as a means of reinforcing language that has been taught[2]. Writing process is the stages a writer goes through in order to produce something in its final written form[3]. The implementation of someone's thoughts is represented by symbols, words, and sentences that have correlation in each part related to the context. The writer puts his thought in the written text that may include his knowledge, experiences, belief, assumptions and anything fit to his intention and context to deliver. Writing is one of the productive skills of language. It is a skill of a writer to communicate information to a reader or group of readers through written text. Writer's ability is realized by applying the rules of language he is writing to transfer the information exist in his mind to his reader effectively. The ability includes all the correct grammatical aspects of the language he is using,

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[1] George Yule, *The Study of Language,* (Cambridge: Cambridge University Press, 2010), p.212.

[2] Jeremy Harmer, *How to Teach Writing,* (Edinburgh: Pearson, 2004), p.39.

[3] *Ibid*., p.4.

the types of information he is transferring, and the rhetoric he is conducting in a communicative event too.

In other words, writing can also be defined as a piece of a written text about a topic in a context. Writing involves the thinking process in order to establish perception about the information that is wanted to deliver. In the relation of someone's perception, the thinking process in writing ability has to be learned and developed.

2. The Process of Writing

In writing both paragraph and essay, there are at least five stage processes that must be followed in order to make it well-constructed. This explanation below shows the five stages of writing process[4]:

a. Generating Ideas

The requirements that must be considered in this first step are: What the purpose of writer's writing is, what his reason to choose it is, what make writer interest is, who the readers are, and what the readers get from his writing is. There are three main purposes for writing that must be considered such as to express oneself, to inform the readers or to persuade them[5].

b. Planning

When planning, writers have to think about three main issues, those are, they have to consider the purpose of their writing, think

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[4] Susan Anker, *Real Writing with Readings 4th Edition*, (Boston: Bedford, 2010),p 40.
[5] Kathleen Mc Whorter, *Successful College Writing 4th Edition*, (Boston: Bedford, 2010), p.82.

of the audience they are writing for, and consider the content structure of the piece[6]. What should be considered in the second stage of writing process is: How to construct and organize his ideas effectively so that his writing becomes readable. Given to the question, someone must arrange his ideas and make an outline. The sample outline may be stated as this chart below[7]:

Table 2: Sample outline for a three-paragraph essay

SAMPLE OUTLINE FOR A THREE-PARAGRAPH ESSAY
1. Thesis statement (part of introductory paragraph 1)
2. Topic sentence for support point 1 (paragraph 2)
• Supporting detail 1 for support point 1
• Supporting detail 2 for support point 1 (and so on)
3. Concluding Paragraph (Paragraph 3)

Source: Susan Anker in *Real Writing with Readings 4th Edition*.

c. Drafting

In this process, writer has to show his readers what is the point of his writing. Basics of a good draft are: it has a topic sentence that makes a clear main point, it has primary and secondary supporting details that shows, explains or proves the main point, it has ideas arranged in logical order and it has a concluding sentence that makes an observation about the main point. In making a draft, writer has to consider an introduction, a title and a conclusion. Moreover, a concluding sentence refers back to the main point and makes an observation based on what

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[6] Jeremy Harmer, *How to Teach Writing,* (Edinburgh: Pearson, 2004), p.4.
[7] *Op.cit*., p.80.

writer have written. A concluding sentence must sum up what has been covered in the essay[8].

d. Revising

What appears in this process is how writer make his draft vivid and convincing to his readers. Revising is the process of looking for ideas that do not fit, looking for ideas that could use more detailed support and connecting ideas with several transitional words and sentences. The purpose of revising is to take another look at his ideas in order to make them clearer, stronger and more convincing. The aim of revising is to evaluate how well writer made his point[9]. Perhaps the order of the information is not clear. Perhaps the way something is written is ambiguous or confusing. The researcher may then move paragraphs around or write a new introduction[10].

e. Editing

The last stage of writing process is editing. Editing means writer fixes certain errors that may make his readers confused toward his writing. Editing is finding and correcting errors and mistakes related to the grammar style, word choice and punctuation. In other words, writer is evaluating the words and

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[8] *Ibid*., p.88.
[9] *Ibid*., p.104.
[10] Jeremy Harmer, *How to Teach Writing,* (Edinburgh: Pearson, 2004), p.5.

phrases writer have used. In this process, writer also looks for errors in word use, spelling, and punctuation and capitalization[11].

3. The Definition of Essay Writing

An essay is a piece of writing that consists of certain paragraphs long. The topic is just one as similar as a paragraph is but because of the topic of an essay is so complex that we have to divide it into several paragraphs instead of one paragraph. To make one topic still has unity, we have to tie the paragraphs together by adding an introduction and a conclusion[12]. An essay is a combination of at least three paragraphs which write about a single topic and a central main idea. The essay refers to a piece of writing that examines a topic deeper than a paragraph. The structure of an essay can be divided into three main parts namely the introduction, the body and the conclusion. The introduction explains the topic by inserting general ideas and thesis statement. Thesis statement is a sentence that gives the main ideas which usually comes at or near the end of the paragraph. The introduction states the main point, generally in a single, strong statement. The introduction may be a single paragraph or multiple paragraphs.

Whereas the body is the largest part of the paragraph that explains and supports the thesis statement and come between the introduction and

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[11] *Op.cit.,* p.309.

[12] Oshima and Hogue, *Writing Academic English 4th Edition,* (New York: Pearson, 1999), p.56.

the conclusion[13]. As should be remembered, there must be one or more body paragraphs in an essay. The body supports in term of shows, explains, and proves the main point. Each paragraph contains facts and details that develop the main point. Each support paragraph has a topic sentence that supports the thesis statement.

The last point is the conclusion that summarizes or restates the thesis and the supporting ideas of the essay[14]. It reminds the readers of the main point. It may reinforce the support, or make an observation based on that support. Whether it is a single paragraph or more, the conclusion should relate back to the main point of the essay[15].

4. The Types of Essay Writing

There are certain types of essay writing as stated as follows:

a. Chronological Order[16]

Chronological order – also known as process essay, is an essay which organizes ideas in the order of their occurrence in time. Chronological order is used to explain the process of something to happen, for instance, how to make a short film or the occurrence of rain. Chronological order also used to tell the sequence of events, to explain to process and procedures, including historical events and

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[13] Dorothy and Lisa, *College Writing From Paragraph to Essay,* (Oxford: Mac Millan, 2003), p.56.

[14] *Ibid.*

[15] Susan Anker, *Real Essay With Reading 4th Edition*, (Boston: Bedford, 2010), p.38-39.

[16] Oshima and Hogue, *Writing Academic English 4th Edition,* (New York: Pearson, 1999), p.81.

autobiographies. The generic structures of chronological essay are introductory paragraph, bodies, and concluding paragraph, whereas conjunctions used in chronological order essay are *first, second, third, then, next, after that, finally, etc*.

b. Cause and Effect[17]

Cause and effect essay means discussing the cause (reasons) for something, the effects (results), or both causes and effects. There are two ways for organizing cause and effect essay, those are block organization and chain organization. In block organization, the writer first discusses all the causes as a block (in one, two, three, or more paragraphs, depending on the number of causes)[18]. Then, the writer discusses all the effects together as a block.

In block organization, a short paragraph often separates one major section from another major ssection. This paragraph is called a transition paragraphs whose purpose is to conclude one section and introduce another section. For example, an essay about global warming might include several paragraphs about the causes and several paragraphs about the effects, with a transition paragraph between two blocks. The conjunctions which are usually used in this kind of essay are *because, for, since, as, as a result of, due to, as a consequence, therefore, so, consequently, thus, etc*.

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[17] *Ibid.,* p.94.
[18] *Ibid.,* p.95.

c. Comparison and Contrast[19]

Comparison and contrast essay defined as an essay that explains the similarities and the differences between two items. There are two ways to organize comparison and contrast essay:[20] point by point organization and block organization. In point by point organization, the writer tells the similarities or differences one by one or specfic in each point of view, whereas in block organization means arranging all similarities together in a block and all the differences together in a block. The conjunctions used in comparison and contrast essay are *similarly, also, too, and, both – and, not only – but also, similar to, compared with, however, although, even though, but, still, yet, etc.*

d. Argumentative Essay[21]

Argumentative essay means an essay that explains agreement or disagreement towards an issue by using certain reasons to strengthen opinion. There are two organization of argumentative essay, those are block pattern and point by point pattern[22]. The generic structures of block pattern consist of introduction, bodies (block 1 and block 2) and conclusion, whereas the generic structures of point by point pattern consist of introduction, bodies (each side gives argument), and conclusion.

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[19] *Ibid.,* p.111.
[20] *Ibid.,* p.113.
[21] *Ibid.,* page. 142.
[22] Oshima and Hogue. (*Writing Academic English 4th Edition.* New York: Longman). Page.143.

e. Descriptive Essay

   Descriptive essay aims to describe someone, something, place or animal. Descriptive essay highlights the entity specifically. The entity should be visualized well through clear and vivid description[23]. The structures of descriptive essay are identification and description. Identification is the introduction of subject that will be described. Description is the information of characteristics of the subject, for instance, psychological attitudes, manner, behavior, physical appearance, specific features, quality and etc. Descriptive essay sometimes uses grammatical unsure such as, specific noun, simple present tense, and all kinds of adjectives. The generic structures of descriptive essay are identification and description.

f. Recount Essay

   Recount essay is a kind of essays whose content aims to report certain occurrences or events in the shape of someone's experiences. The purpose of recount essay is to entertain the reader[24]. The structures of recount essay are orientation, events, and reorientation. Orientation is the opening part that introduces figures, time and place. Events are the sequences of occurrences and reorientation is the closing – sentences that reveals the occurrences that have been stated before.

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[23] Otong Setiawan, *Essay Writing,* (Bandung:Yrama Widya, 2009), p. 153.
[24] *Ibid*., p.171.

g. Classification Essay

Classification is writing that organizes, or sorts, people or items into categories[25]. Classification essay aims to classify one thing to certain categories. Common transitions in classification essay are *another, another kind, first, second, third, for example, for instance, last, one example, another example,* etc. The generic structures of classification essay are introduction, bodies and conclusion.

5. **Scoring of Essay Writing**

The scoring rubric of essay writing is as follows:

Table 3: Scoring Rubric of Essay Writing

No	Item	Maximum Score	Actual Score
	FORMAT		
1	Title Centered	2	
2	First line of each paragraph indented	1	
	MECHANICS		
1	Punctuation: periods, commas, capitalization, etc.	3	
	CONTENT		
1	The essay fulfills the assignment	5	
2	Use appropriate reference	5	
3	Use substitution	8	
4	Use ellipsis	8	
5	Use conjunction	8	
	ORGANIZATION		
1	The essay has an introduction	5	
2	The essay has body	25	
3	The essay has conclusion	5	
	GRAMMAR		
1	Estimate a grammar and sentence structure	25	
	TOTAL	100	

Source: Oshima and Houge in *Writing Academic English 4th Edition.*

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[25]Anker, Susan. *Real Writing with Readings 4th Edition*. (Boston: Bedford. 2010).page 188.

B. **The Concept of Grammatical Cohesion**

1. **The Definition of Cohesion**

Cohesion may be said as the ties and connections that exist within texts[26]. When someone writes text, he has a number of grammatical devices to make sure that our writing 'sticks together'. The writerr uses various grammatical devices to help the reader understand what is being referred to at all times, even when words are left out or pronouns are being substituted for nouns[27]. When a text has cohesion, all the supporting sentences connect to each other in their support of the topic sentence.

Further, cohesion is sequences of sentences or utterances which seem to 'hang together'. It contains what are called text-forming devices. These are words and phrases which enable the researcher or speaker to establish relationships across sentence or utterance boundaries, and which help to tie the sentences in a text together[28]. In other words, cohesion refers to the way that a text makes sense syntactically. What must be noted is that common cohesive devices include forms of reference (anaphora and cataphora), ellipsis, substitution, conjunction and lexical cohesion[29]. Cohesion deals with how clauses and sentences are linked together[30]. It is the multifarious linguistic ways in which sentences are connected to each other and the

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[26] George Yule, *The Study of Language 4th Edition*, (New York: Cambridge University Press, 2010), p.143.

[27] Jeremy Harmer, *How to Teach Writing,* (Edinburgh: Pearson, 2004), p.22.

[28] David Nunan, *Introducing Discourse Analysis*, (London: Penguin Group, 1993), p.21.

[29] Paul Baker and Sibonile Ellece, *Key Terms in Discourse Analysis*, (New York: Continuum International Publishing Group, 2010), p.16-17

[30] Terry Locke, *Critical Discourse Analysis,* (New York: Continuum International Publishing Gorup, 2004), p.46

'glue' that holds the text together[31]. In line with cohesive links which are part of what stitches a text together into a meaningful whole; they are like threads that tie language, and, thus, also sense together[32].

2. The Definition of Grammatical Cohesion

Grammatical cohesion is syntactical feature of discoure structure, which gives a text its texture. Grammatical cohesion is the set of semantic resources for linking a sentence with was has gone before. It accounts for the essential semantic relations whereby any passage of speech or writing is enabled to function as a text[33]. There are certain number of distinct categories for the classification of grammatical cohesive devices, reference, substitution, ellipsis, and conjunction. Reference can be instantiated by personal pronouns, by demonstrative adjectives, demonstrative adverbs, the definite article and so on. Reference is a relation between meanings on the semantic level. Next, there is substitution which is a relation between linguistic items, such as words or phrases on the lexicogrammatical level[34]. In line with ellipsis, which refers to an intentional omission of a word or phrase from a text[35]. So far, there are four kinds of grammatical cohesion as follows[36]:

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[31] *Ibid.,* p.53

[32] *Ibid.,* p.61

[33] H.G Widdowson,*Text, Context, Pretext: Critical Issues in Discourse Analysis*, (Oxford: Blackwell Publishing, 2004), p.64

[34] *Ibid.*

[35] Paul Baker and Sibonile Ellece, *Key Terms in Discourse Analysis*, (New York: Continuum International Publishing Group, 2010), p.46

[36] Schiffrin, et.al., *The Handbook of Discourse Analysis*, (Oxford: Blackwell Publisher, 2001), p.36.

a. Reference

Reference refers to resources for referring to a participant or circumstances element whose identity is recoverable[37]. Reference is the specific nature of the information that is signaled for retrieval. In the case of reference the information to be retrieved is the referential meaning, the identity of the particular thing or class of things that is being referred to, and the cohesion lies in the continuity of reference[38]. There are three kinds of reference, those are:

1) Personal Reference

Personal reference is reference by means of function in the speech situation, through the category of person[39]. In personal reference, the category of person is used to refer, they are either determinative or possessive. If determinative, they are personal pronouns serving as thing/head in the nominal group. If possessive, they are determiners serivng as modifier[40].

Table 4: Table of Personal Reference

Head		Modifier	
Noun (pronoun)		Determiner	
I	me	Mine	my
you		yours	your
we	us	ours	our
he	him	his	his
she	her	hers	her
they	them	theirs	their
it		[its]	its

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[37]*Ibid.*

[38] Halliday and Hasan, *Cohesion in English*, (New York: Pearson, 1976), p.31.

[39]*Ibid.,* p.37

[40]M.A.K Halliday and Christian M.I.M Matthiessen, *An Introduction to Functional Grammar 3rd Edition,* (New York: Oxford University Press, 2004), p.554

one		one's

Source: Halliday and Hasan in *Cohesion in English*.

2) Demonstrative Reference

Demonstrative reference is reference by means of location on a scale of proximity[41]. Demonstrative reference is essentially a form of verbal pointing. We identifies the referent by locating it on a scale of proximity, for instance, the basic sense of 'this' refers to something as being 'near', 'that' refers to something as being 'not near'.

Table 5: Demonstrative Reference

Nominal Group		Adverbial Group
Head	Pre-modifier	Head
Pronoun	Determiner	Adverb
This/These	This/These	Here (now)
That/Those	That/Those	There (then)
It	The	

Source: Halliday and Hasan in *Cohesion in English*.

3) Comparative Reference

Comparative reference is indirect reference by means of identity or similarity[42]. In comparative reference, the reference item signals 'you know which' not because the same entity is beng referred to over again but rather because there is a frame of reference – different or the same, like or unlike, equal or unequal, more or less.

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[41] Halliday and Hasan, *Cohesion in English*, (New York: Pearson, 1976), p.37
[42] *Ibid.*

Table 6: Comparative Reference

Modifier	Adjunct
Adjective	Adverb
same identical equal similar additional other different else	Identically similarly Likewise so such Differently otherwise
Better, more, etc. (comparative adjectives and quantifiers)	So more less equally

Source: Halliday and Hasan in *Cohesion in English*.

b. Ellipsis

Ellipsis refers to resources for omitting a clause, or some part of a clause or group, in contexts where it can be assumed[43]. Ellipsis happens when some essential structural element is omitted from a sentence or clause and can only be recovered by referring to an element in the preceding text[44]. Ellipsis occurs when there is something hidden or omitted. There are three kinds of ellipsis, those are nominal ellipsis, verbal ellipsis and clausal ellipsis. By nominal ellipsis, what is omitted is nominal group. For example: *My kids* play an awful lot of sport. *Both* are incredibly energetic. By verbal ellipsis, what is omitted is verbal group. For instance: Have you *been swimming?* Yes, I *have*. The last is clausal

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[43] Schiffrin, et.al., *The Handbook of Discourse Analysis*, (Oxford: Blackwell Publisher, 2001), p.36.

[44] David Nunan, *Introducing Discourse Analysis*, (London: Penguin Group, 1993), p. 25

ellipsis. In clausal ellipsis, what is omitted is the entire clause. For instance: *(While he was) In Oxford*, he was active in dramatic society[45].

c. Substitution

Substitution is a relation between linguistic items, such as words or phrases. Substitution is a relation on the lexicogrammatical level, the level of grammar and vocabulary or linguistic form[46]. Substitution refers to the addition of a set of place holders which can be used to signal the omission – e.g. *so* and *not* for clauses, *do* for verbal groups, and *one* for nominal groups.[47] Substitution occurs when there is something replaced or substituted. There are certain types of substitution, those are nominal, verbal and clausal substitution[48].

Nominal substitution occurs when there is a noun that is substituted into *one* or *ones* in the sentences. For example: There are some new *tennis balls* in the bag. These *ones* have lost their bounce.

The verbal substitute in English is *do*. For example:

A: Amie says you *drink too much*.

B: So *do* you!

Clausal substitute in English are *so* and *not*. This type of substitution provides what is presupposed which is not only an element within a clause but an entire clause. For example[49]:

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[45] *Ibid.,* p.26.

[46] H.G Widdowson,*Text, Context, Pretext: Critical Issues in Discourse Analysis*, (Oxford: Blackwell Publishing, 2004), p.66

[47] David Nunan, *Introducing Discourse Analysis*, (London: Penguin Group, 1993), p.36.

[48] *Op.cit.,* p. 24.

[49] *Ibid*., p.26.

A: Is it *going to rain?*

B: I think *so.*

d. Conjunction

Conjunction differs from reference, substitution and ellipsis in that it is not a device for reminding the reader of previously mentioned entities, actions and states of affairs. Conjunction is a cohesive device because it signals relationship that can only be fully understood through reference to other parts of the text[50].

Conjunction is the semantic system whereby speakers relate clauses in terms of temporal sequence, consequence, comparison and addition[51]. Temporal relations connect clauses depending on whether the actions they encode take place at the same time or one after the other. Consequential relations connect clauses as cause and effect. Comparative relations pick out contrasts and similarities between clauses. Additive relations simply add or substitute extra alternative clauses to a text[52].

Table 7: The Lists of Conjunctions

Types	Sub-types		Items
Elaboration	Apposition	Expository	*In other words, that is, I mean, to put it another way*
		Exemplifying	*For example, for instance, thus, to illustrate*
	Clarification	Corrective	*Or rather, at least, to be more precise*
		Distractive	*By the way, incidentally*
		Dismissive	*In any case, anyway, leaving*

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[50] Halliday and Hasan, *Cohesion in English*, (New York: Pearson, 1976), p. 226.

[51] *Ibid.,* p.238.

[52] *Ibid*., p.244.

			that aside
		Particularizing	*In particular, more especially*
		Resumptive	*As I was saying, to resume, to get back to the point*
		Summative	*In short, to sum up, in conclusion, briefly*
		Verificative	*Actually, as a matter of fact, in fact*
Extension	Addition	Positive	*And, also, moreover, in addition*
		Negative	*Nor*
		Adversative	*But, yet, on the other hand, however*
	Variation	Replacive	*On the contrary, instead*
		Subtractive	*Apart from that, except for that*
		Alternative	*Alternatively*
Enhancement	Spatio-temporal: temporal	Following	*Then, next, afterwards*
		Simulatenous	*Just then, at then same time*
		Preceding	*Before that, previously*
		Conclusive	*In the end, finally*
		Immediate	*At once, thereupon, straightaway*
		Interrupted	*Soon, after a while*
		Repetitive	*Next time, on another occasion*
		Specific	*Next day, an hour later, that morning*
		Durative	*Meanwhile, all that time*
		Terminal	*Until then, up to that point*
		Punctiliar	*At this moment*
		Following	*Next, secondly*
		Simultanous	*At this point, here, now*
		Preceding	*Up to now*
		Conclusive	*Lastly, last of all, finally*
	Manner	Comparison: positive	*Likewise, similarly*
		Comparison: negative	*In a different way*
			Thus, thereby, by such means
	Causal-		*So, then, therefore,*

	condition		*consequently, hence, because of that, for*
		Result	*In consequence, as a result*
		Reason	*On account of this, for that reason*
		Purpose	*For that purpose, with this in view*
		Conditional: positive	*Then, in that case, in that event, under the circumstances*
		Conditional: negative	*Otherwise, if not*
		Concessive	*Yet, still, though, despite this,however, even so, all the same, nevertheless*
	Matter	Positive	*Here, there, as to that, in that respect*
		Negative	*In other respects, elsewhere*

Source: M.A.K Halliday and Christian M.I.M Matthiessen in *An Introduction to Functional Grammar 3rd Edition.*

C. The Concept of Concept Mapping Strategy

1. The Definition of Concept Mapping Strategy

Concept Mapping strategy is the schematic device for presenting a set of concept meanings embedded in a framework of propositions and linked by certain linking words. Concept mapping is a way to proceed meaningful learning. Concept mapping is the representation of meaningful relationships between concepts in the shape of propositions[53]. Concept is a perceived regularity of pattern in events or objects designated by a label (usually a word or two words). The combination of two concepts into simple statements about a thing or event and form propositions. Propositions are

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[53]Novak and Gowin, *Learning How to Learn*, (Cambridge: Cambridge University Press, 2006), p.15.

really the basic units of meanings people form, and consist of two concepts joined by linking words to make a meaningful statement[54]. Propositions are two or more concept labels linked by word to form a proposition. For instance, "sky is blue" represents a simplest concept mapping that creates a proposition about the concepts of "sky" and "blue". Concept mapping is a schematic tool to represent a set of concepts which are embedded in a frame of propositions. Concept mapping is best when it is conducted hierarchical; that is, the more general, more inclusive concepts are best to be placed at the top of the map, with progressively more specific, less inclusive concepts are arranged below them[55].

Concept mapping is a visual strategy of learning. It points out the use of diagrams, graphs and sketch that visually represent information[56]. Concept maps are diagrams that use various visual metaphors or methods to lay out information. Each shape, line, arrow and image has a specific meaning for each type of concept mapping. Concept mapping also use attributes such as positioning, color and size to include data even more. In order to link each piece of information in the diagrams as concept mapping, the linking relationship must be used. Linking relationship is stated below[57]:

1. Concept in nodes or cell

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[54] Brian, et.al, *Applied Concept Mapping,* (Boca Raton: Taylor and Francis Group, 2011), p. 6

[55] *Ibid.*

[56] Sean Whiteley, *Memletics Concept Mapping Course*, (New York: Advanogy, 2005), p.7.

[57] *Ibid.*

Nodes contain a concept, item or question. In the example, the nodes are the rectangles, containing concepts such as 'visual metaphors' and the explanatory information beneath that concept.

2. Relationships as links

Relationships are the lines that link the nodes. In this case, the links have labels such as "such as", "based on", "like", etc. These words explain the relationship between the nodes. The arrows show the direction of the relationship. Sometimes there are no words. The link itself shows the relationship.

In concept mapping, concepts are represented in boxes that are linked by labeled relationships; two related concepts (including their link) form a proposition or semantic unit. Concepts are also arranged hierarchically such that more general concepts are located higher on the map and specific concepts such as examples are located lower. A concept is a perceived regularity in events or objects, or records of events or objects, designed by a label[58]. A concept by itself does not provide meaning, but when two concepts are connected using linking words or phrases, they form a meaningful proposition. Thus, the characteristics of concept mapping are:

1. Propositions contains two or more concepts connected using linking words or phrases to form a meaningful statement.

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[58] Jorge and Rafael, *Concept Maps as Cognitive Visualizations of Writing Assignments,* (Sydney: Educati
onal Technology&Society, 2011), Vol 14, p.18

2. The concepts are represented in a hierarchical fashion with the most inclusive, most general concepts at the top of the map and the more specific, less general concepts arranged hierarchically below.

3. The construction of map is best when it is accompanied by reference to some particular question we seek to answer, then so called – focus question.

4. There is a final feature of concept map called specific examples of events or objects that help to clarify the meaning of a given concept.

5. The inclusion of cross-links, which are the relationships or links between concepts in different segments or domains of the concept map.

As a conclusion, concept mapping is a way of representing relationships between ideas, images or words in the same way that a road map represents the locations of highways and towns, etc. In a concept map, each word or phrase connects to another, and links back to the original idea, word, or phrase.

As such they are a way to develop logical thinking and study skills by revealing connections and helping people to see how individual ideas form a larger picture[59]. Concept mapping are diagrams that help students understand how words or ideas are related to one another.

Typically, the main topic of the lesson or issue is placed in the middle of the map and then lines are used to show relationships between words and

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[59] Sarah Simpson, *Essential Study Skill,* (New York: Routledge, 2011), p.39

ideas. It also provides a visual representation of a concept, and students do not always have to rely solely on verbal representations of concepts, they can also use pictures and illustrations to demonstrate their knowledge[60].

Figure 1: The Figure of Concept Mapping
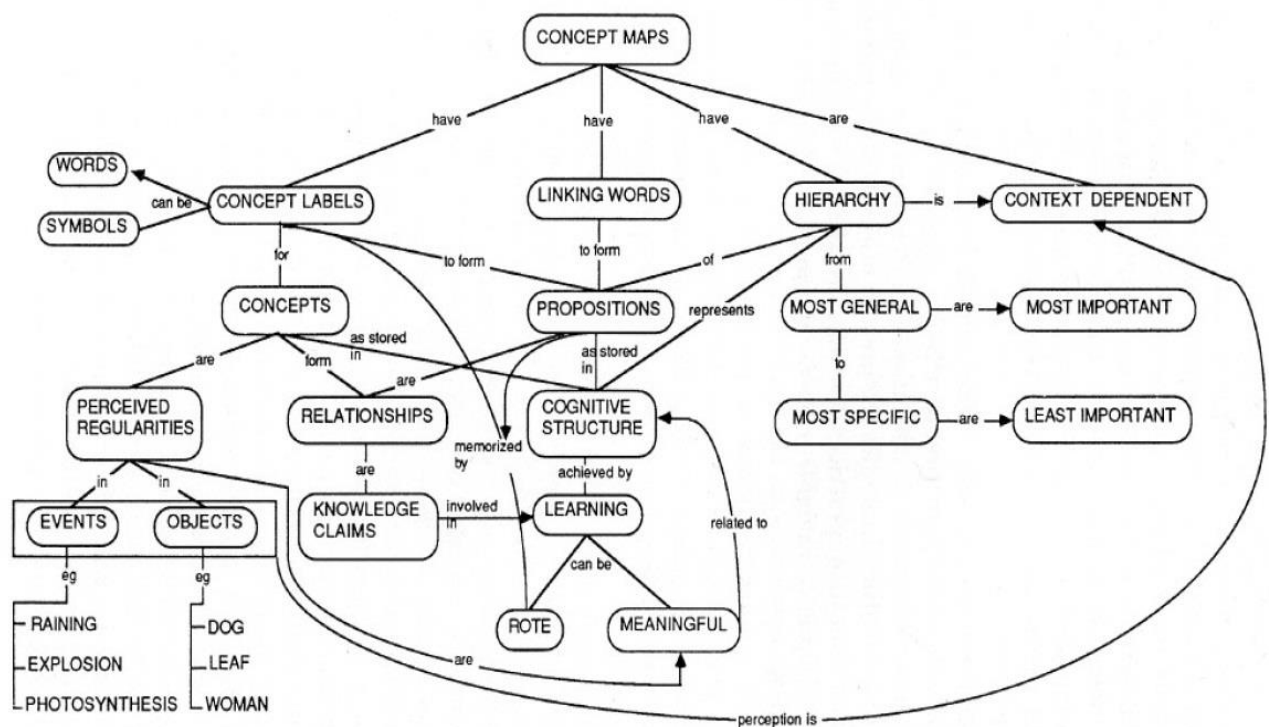
Source: Novak and Gowin in *Learning How to Learn.*

2. The Type of Concept Mapping Strategy

There is a type of concept mapping that will be applied in the classroom as follows[61]:

1. Spider

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[60] Anete, et.al. *Teaching Language Arts to English Language Learners*. (New York: Routledge. 2010), p.68

[61] *Ibid.,* p.11

The central ideas is placed in the middle of the map, with related concepts laid out around the central ideas. A spider concept map has a central ideas to unify all the related concepts radiating out from the central.

Figure 2: Spider Concept Mapping
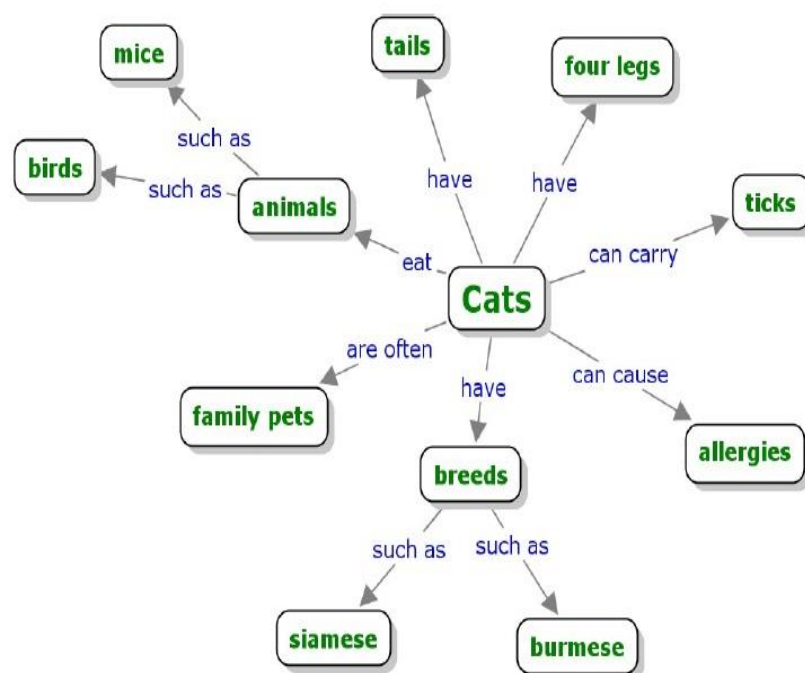
Source: Sean Whiteley in *Memletics Concept Mapping Course*.

3. The Procedure for Making Concept Mapping

There are certain activities to prepare for concept mapping as follows[62]:

a. Have students close their eyes and ask them if they see a picture in their mind when the teacher recites the words. Use 'familiar object' words at first, such as their friend, their parents, flower, cat, etc.

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[62] Novak and Gowin, *Learning How to Learn*, (Cambridge: Cambridge University Press, 2006), p.25.

b. Print each word on the board after the students respond. Ask them for more examples in line with spider concept mapping.

c. Continue with 'event' words such as growing, eating, working, and ask the students for more examples, writing words on the board in line with spider concept mapping.

d. Give the students a few words that are unfamiliar and ask them if they see a picture in their mind.

e. Help the children recognize that words convey meaning to them when they represent pictures or meanings in their minds.

f. Introduce the word *concept* and explain that concept is the word used to mean some kind of object or even 'picture'. Review some of the words on the board and ask if these are all concepts; ask if these all bring a picture to mind.

g. Write words on the board such as the, is, are, when, that, then. Ask if these words bring a picture to mind. The students should recognize that those are not *concept* words; they are *linking* words used in language to link concept words together into sentences that have special meaning.

h. Label the examples 'linking words' and ask students for additional examples.

i. Construct short sentences with two concepts and a linking word, e.g., flower is beautiful, my friend is smart.

j. Have the students construct some short sentences of their own using the concept and linking words on the board and some of their own words if they wish.

4. The Advantages and Disadvantages of Concept Mapping Strategy

There are certain advantages of using concept mapping, those are[63]:

a. Concept mapping is an excellent tool for visual learners because it uses diagrams, graphs, sketches and other visual representations to create and understand ideas.

b. Especially for physical and logical learners, they can learn well by physically drawing maps, links, diagrams, and similar types of visual images.

c. Concept mapping may increase learners' social relationship by drawing together as a group (e.g., on a whiteboard, flipchart or paper).

d. Concept mapping helps non-visual learners to confirm what they have read. It also helps hierarchical learners to start learning a subject at a high level and then work down into the details. They learn well by getting the 'lay of the land' through concept maps.

e. Concept mapping help to develop logical thinking as well as study skills because they reveal connections and help to see how individual ideas makes up a larger whole.

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[63] Sean Whiteley, *Memletics Concept Mapping Course*, (New York: Advanogy, 2005), p.9.

f. Concept mapping is flexible and it can be used to understand ideas of virtually in every kind. Learners can make the maps simple or complex, linear, branched, radiating or cross-linked.

Meanwhile, there are certain disadvantages of concept mapping such as they require some expertise to learn, they can be idiosyncratic in terms of design, and because of their complexity they may not always assist memorability, with learners faced with designing concept maps often feeling overwhelmed and de-motivated. Others have noted that the rigid rules used for identifying concepts and their multiple relationships does not make the process simple or easily to learn, and the linear nature of concept maps mean that they are not adequate to capture more complex relationships between concepts. In particular, they do not enable easy of concepts of critical importance from those of secondary importance[64].

D. Theoretical Framework and Paradigm

1. Theoretical Framework

This research was quantitative research designed by pre-experimental study to determine whether there is influence from Independent Variable (X) to Dependent Variable (Y). In this research, there were two variables, those were Concept Mapping Strategy (X) and Grammatical Cohesion in Essay Writing (Y). The aim of Concept Mapping strategy was to sharpen students' ability in constructing an essay cohesively. This purpose might be

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[64] Martin Davies, "High Education", *Concept Mapping, Mind Mapping and Argument Mapping: What are the differences and do they matter?*, Vol 10, No.1007, 2010.

achieved through mapping students' thought into certain concepts, so that the focus of this strategy was grammatical cohesion within the essay.

Concept Mapping strategy gave an opportunity for students to map out their thoughts. Consequently, they might see the logical structure their writing and they might find out several mistakes and error they did grammatically. This strategy offered the students to arrange their notions and ideas orderly and logically.

Based on the description above, the researcher assumed that if Concept Mapping Strategy was applied appropriately, the students' grammatical cohesion in essay writing would be sufficient. Conversely, if Concept Mapping Strategy wasn't applied appropriately, the students' grammatical cohesion in essay writing would be insufficient.

2. Paradigm

Based on the theoretical framework above, the researcher described the paradigm as follows:

Figure 3: The Figure of Paradigm
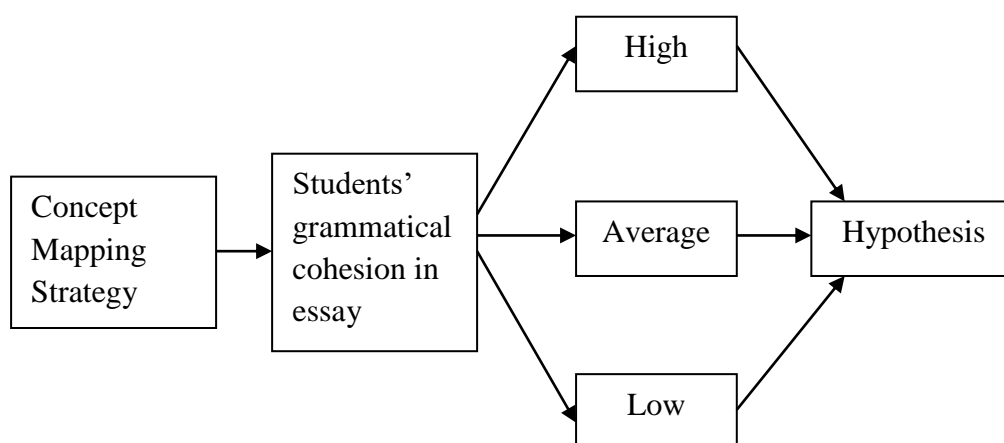
Based on the paradigm above, if students' score revealed higher, there was a positive and significant influence of concept mapping strategy on students' grammatical cohesion in essay writing. However if the students' score was lower, there was no positive and significant influence so the students' grammatical cohesion in essay writing would decrease into the low category.

3. Hypothesis

Based on the theoretical framework and paradigm above, the researcher formulated the hypothesis as follows:

a. Hypothesis Formulation

1) Alternative Hypothesis (Ha)

There is any positive and significant influence of using Concept Mapping Strategy on Students' Grammatical Cohesion in Essay Writing at The Eleventh Grade of SMAN 2 Metro.

2) Null Hypothesis (Ho)

There is no positive and significant influence of using Concept Mapping Strategy on Students' Grammatical Cohesion in Essay Writing at The Eleventh Grade of SMAN 2 Metro.

b. Statistical Hypothesis

The statistical hypothesis that represented the hypothesis above was as follows:

If $t_{observed} > t_{table}$, the Ha is accepted and Ho is rejected.

If $t_{observed} < t_{table}$, the Ha is rejected and Ho is accepted.

CHAPTER III

RESEARCH METHOD

A. Research Design

This research was quantitative research where the researcher used statistical analysis and measurement in analyzing the data. In quantitative approach, the researcher related the variable within problems and hypothesis, used the validity and standard reliability, observed and measured the data numerically and simultaneously held statistical procedures.

Meanwhile, the design of this research was pre-experimental. This research was conducted as one-group pretest – posttest design whereby the group was given pretest to measure their prior ability. Then the researcher gave treatment of concept mapping strategy. After that, the researcher gave posttest to measure whether there is any positive and significant influence after giving treatment. One group pretest – posttest design may be formulated as follows[65]:

Pretest	Independent	Posttest
Y_1	X	Y_2

where:

Y_1 : Pretest (before treatment)

Y_2 : Posttest (after treatment)

X : Treatment

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[65] Ary, et.al., *Introduction to Research in Education 8th Edition*, (Belmount: Wadsworth, 2010), p.304.

This research was held in Senior High School 2 Metro. In this research, the researcher investigated the students from XI IPA 2 which consisted of 30 students.

B. Variable and Operational Definition of Variable

1. Independent Variable

Independent variable of this research was Concept Mapping Strategy. Concept Mapping strategy was the schematic device for presenting a set of concept meanings embedded in a framework of propositions and linked by certain linking words. To measure this variable, the researcher used observation technique then the researcher let the students make their own concept maps based on certain criteria provided by the researcher. At the time they made their concept maps, the researcher observed their activities and the result of their maps. The indicators of Concept Mapping strategy running well were[66]:

Table 8: Measurement Indicators of Concept Mapping Strategy based on Novak and Gowin Model

Criteria	Description
Proposition	The relationship between two concepts indicated by a connecting line and linking words.
	The relationship is valid for each meaningful proposition shown.
Hierarchy	The map shows hierarchy.
	Each subordinate concept is more specific and less general than the concept above it.
Cross links	The map shows meaningful connections between one segment of the concept hierarchy and another segment.

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[66] Edson Coutinho, *Concept Maps: Evaluation Models for Educators,* (Sao Bernado da Compo: Journal of Business Management and Science, 2014), Vol.2 No.5, p.115

		The relationship is shown significant and valid.
		Each cross link is both valid and significant.
		It illustrates a synthesis between sets of related concepts or propositions.
	Examples	Specific events or objects are valid instances of those designated by the concept label.

Source: Edson Coutinho in Concept Maps: Evaluation Model for Educators

2. Dependent Variable

Dependent variable in this research was students' grammatical cohesion in essay writing. In conducting an essay, there were three main parts that should be considered carefully, those were the introductory paragraph, the body paragraph and the concluding paragraph. To measure this variable, the researcher used test that consisted of pretest and posttest. The test that was given was to make an essay. The pretest was the students had to construct an essay without making concept maps, meanwhile the posttest was the stduents had to construct an essay after making concept maps first. The indicators of a well-constructed essay were stated below[67].

Table 9: Scoring Rubric of Essay Writing

No	Item	Maximum Score	Actual Score
	FORMAT		
1	Title Centered	2	
2	First line of each paragraph indented	1	
	MECHANICS		
1	Punctuation: periods, commas, capitalization, etc.	3	
	CONTENT		
1	The essay fulfills the assignment	5	
2	Use appropriate reference	5	
3	Use substitution	8	

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[67] Oshima and Hogue, *Writing Academic English 4th Edition,* (New York: Longman, 1999), p.315.

4	Use ellipsis	8	
5	Use conjunction	8	
	ORGANIZATION		
1	The essay has an introduction	5	
2	The essay has body	25	
3	The essay has conclusion	5	
	GRAMMAR		
1	Estimate a grammar and sentence structure	25	
	TOTAL	100	

Source: Oshima and Houge in *Writing Academic English 4th Edition*

C. Population, Sample and Sampling Technique

1. Population

Population is those people about whom you wish to investigate something[68]. Population is defined as all members of any well-defined classv of people, events or objects[69]. Population is the general area that consists of subjects that have certain quality and characteristics that are stated by the researcher to be investigated.

Population in this research was the students of the eleventh grade of science class of SMAN 2. The total population in this research was 144 students of science major who were divided into five classes.

2. Sample

Sample is a portion of a population[70]. Sample is a part or a number of characteristics of population. In other words, sample is the representation of population. In this research, the researcher used one science class of the

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[68] Ary, et.al., *Introduction to Research in Education 8th Edition*, (Belmount: Wadsworth, 2010), p.54.
[69] *Ibid.,* p.148.
[70] *Ibid*.

eleventh grade in SMAN 2 Metro that was XI IPA 2 that consists of 30 students.

3. Sampling Technique

In this research, the researcher used purposive cluster sampling to determine the representation of population. It was caused by the data or pre-survey in writing test revealed that the students of XI IPA 2 could be categorized into the class that was lower than the other classes.

B. Data Collecting Technique

1. Test

Test is a set of questions or exercises or other tools that is used to measure skill, ability, knowledge, intelligence, capability that belong to individual or group. In this research, the researcher used test to collect the data. The researcher used pre-test and post-test as tools to gather the data. The kind of test was essay test. The students were commanded to make their own essay based on the direction.

a. Pretest

Before conducting the students to make an essay by using concept mapping, the teacher gave a test to the students. Pretest was given to the class before treatment.

b. Posttest

Posttest was given to the class after giving treatment that was concept mapping strategy. The test was given in order to know whether there is

a positive and significant influence of students' grammatical cohesion in writing an essay.

2. **Documentation**

Documentation is a method that is used to acquire information without using the instrument. In documentation technique, the researcher will collect the data formally or informally in the shape written text, document, private notes or students' result on examination and etc. The researcher used documentation technique to get detail information about condition of the school buildings and facilities, school historical background, teachers, employers, and organization structure of SMA N 2.

3. **Observation**

Observation means centralization of attention towards a subject by involving someone's whole senses to gather the data. The essence of observation is observing the subject to get something important. Then, what had been observed by the researcher were the use of concept mapping in the class and the students' activity in learning English.

C. Research Instrument

Instrument is a tool that is used by the researcher to gather the data that fits to the data collecting technique. Furthermore, in this research, the instrument that was used involved:

1. **Instrument Blueprint**

Table 10: The Research Instrument Blueprint Test

No	Variable	Indicator	Item Number	Form
1	Concept Mapping Strategy (Variable X)	1. The relationship between two concepts indicated by a connecting line and linking words. 2. The relationship is valid for each meaningful proposition shown. 3. The map shows hierarchy. 4. Each subordinate concept is more specific and less general than the concept above it. 5. Specific events or objects are valid instances of those designated by the concept label.	1	Concept Mapping
2	Grammatical Cohesion in Essay Writing (Variable Y)	1. Using appropriate reference. 2. Using appropriate substitution. 3. Using appropriate ellipsis. 4. Using appropriate conjunction. 5. The ideas is arranged in logical order.	1	Essay

2. **Instrument Calibration**

Instrument calibration is the scale of measurement used to decide the instrument standard. In other words, the instrument calibration is the scale

to measure the action of instrument made by the researcher. In this research, the researcher collected the data by using test instrument. The test consisted of 2 directions. The first direction was the students were commanded to make their own concept mapping towards a topic given by the researcher. Then, the second direction was the students had to make an essay based on the concept maps they had conducted before.

In order to make the data become scientific and accurate, the instrument ought to be served appropriately. Therefore, the researcher used content – related evidence of validity whereby the validity referred to the relevance of instrument based on how appropriate the content was, how comprehensive the content was, how logical the content to get at the intended variable, and how adequate the questions represented the content to be assessed[71]. The content and format must be consistent with the definition of the variable and the sample of subjects to be measured.

D. Data Analysis Technique

To investigate whether there is any positive and significant influence of Concept Mapping Strategy on Students' Grammatical Cohesion in Essay Writing at The Eleventh Grade of SMAN 2 Metro, the researcher analyzed the data by using chi-square. The formula of chi-square was as follows[72]:

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[71] Fraenkel and Wallen, *How to Design and Evaluate Research in Education*, (New York: Mc Graw-Hill, 2009), p.147.

[72] Ary, et.al., *Introduction to Research in Education 8th Edition*, (Belmount: Wadsworth, 2010), p.188.

$$\chi^2 = \sum \left[\frac{(Fo - Fe)^2}{Fe} \right]$$

Then, the researcher used t-test for dependent sample to know whether there is a positive and significant influence on students ' grammatical cohesion in essay writing as follows[73]:

$$t = \frac{\overline{D}}{\sqrt{\dfrac{\sum D^2 - (\sum D)^2}{N\,(N-1)}}}$$

Where:

t   = ratio

$\overline{D}$ = average difference

$\sum D^2$ = different scores squared, then summed

$(\sum D)^2$ = difference scores summed then squared

N   = number of pairs

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[73] *Ibid.,* p.177.

CHAPTER IV

RESULT OF THE RESEARCH AND DISCUSSION

A. General Description

1. Description of The Research Location

a. History of SMAN 2 Metro

SMAN 2 Metro was established based on the decision of The Ministry of Educational and Cultural Affairs of Republic of Indonesia by number 0363/1991 on 20th June 1991. At first, it was named SMAN Bantul. After 20th June 1993, in line with The Ministry of Educational and Cultural Affairs number 02/1993 it changed into SMAN 2 Metro located at 16 A Sriwijaya Street in Metro, Lampung.

In addition, SMAN 2 Metro have guided by 6 principles as follows:

1) Drs. Hi. Baharuddin Harahap (in the period of 1991 – 1996)

2) R. Eko Haryono (in the period of 1997 – 2000)

3) Drs. Kamiluddin (in the period of 2000 – 2004)

4) Drs. Murni Siregar (in the period of 2004 – 2006)

5) Hartanto, S.Pd (in the period of 2006 – 2015)

6) Drs. A. Indrianto Susetyo (in the period of 2015 – now)

b. Vission and Mission of SMAN 2 Metro

1) Vission

Being an independent and prestigous school based on educational manner and knowledgeable about technology advance.

2) Mission

    a) Creating the developing of curriculum

    b) Increasing the effectivity of learning process

    c) Creating accomplishment with the standard minimimum $\geq$ 7,50 for each lesson

    d) Creating human resources of good teacher

    e) Completing the infrastructures

       Moreover, The orientation of SMA N 2 Metro is the official management. The school consists of twenty seven classes, teacher room, official employee room, library, computer laboratory, biological laboratory, chemist laboratory, physic laboratory, mosque, canteen, toilet, and parking area.

       Also, the principle is a person who have the high status in coordinator all of duty in school activity. To do it, the principal of SMA N 2 Metro is helped by school committee, official employee, the head vice of student, the head vice of general, and the head vice of curriculum.

c. Structure of Organization

The structure of organization of SMAN 2 Metro is stated below:

ORGANIZATION STRUCTURES OF SMAN 2 METRO

School Committee

Headmaster
Drs. A. Indriyanto

Laboratory Unit
Aida Fetra, S,.Si
Husna Musryida, S.Si
Siwi Triwuryanti, S.Pd

Library Unit
Luckty Gian Soekarno

Chief of Administration

Adm of Human Resources
Yuli Sumitro

Adm of Letters
Siti Nuraini

Adm of Student Affairs

Adm of Facilities
Sumaryanto

Adm of Academic Affairs
Angga Prasetya, A.Md

Adm of Finance
Sri Utami Dewi

Vice of Headmaster of Curriculum Affairs
Drs. Darnel

Vice of Headmaster of Student Affairs
Drs. Mariman

Vice of Headmaster of Facilities
Triyatno, S.Pd

Vice of Headmaster of HUMAS
Amar Fatkhalloh, S.Pd.I

Curriculum Development

MGMP Coord

OSIS Guide

Control Team

Proficient Teachers

Teachers of Classes

Teachers of SK

OSIS

Students

d. Condition of The Teachers and Employers

The condition of the teachers and employers in SMAN 2 Metro is stated below:

Table 11: Condition of Teachers and Employers

No	Names	Sex	Proficiency
1.	Drs. A. Indrianto Susetyo	Male	Headmaster
2.	Drs. Mariman	Male	Vice of Headmaster
3.	Drs. Darnel	Male	Vice of Headmaster
4.	Triyatno, S.Pd	Male	Vice of Headmaster
5.	Amar Fatkhlloh, S.Pd. I	Male	Vice of Headmaster
6.	Dra. Bernas Wahyu W	Female	Art Teacher
7.	Dra. Sri Hartati	Female	Chemistry Teacher
8.	Dra. Suminah	Female	Geography Teacher
9.	Dra. Kemala Dewi	Female	Sociology Teacher
10.	Drs. Rasiman	Male	Economics Teacher
11.	Drs. Arsyad	Male	EconomicsTeacher
12.	Hartanto, S.Pd	Male	Mathematics Teacher
13.	Drs. Aris Purwadi	Male	Mathematics Teacher
14.	Drs. Sugianto	Male	Biology Teacher
15.	Drs. Suprapto	Male	English Teacher
16.	Dra. Wiwik Nurhayati	Female	HistoryTeacher
17.	Drs. Bambang Sri	Male	Chemistry Teacher
18.	Drs. Edi Setioarto	Male	Indonesian LanguageTeacher
19.	Dra. Mekaryanti	Female	English Teacher
20.	Dra. Rumani	Female	Geography Teacher
21.	Dra. Suharmi	Female	History Teacher
22.	Dra. Rudi Hartati	Female	Indonesian Language Teacher
23.	Priyantoro, S.Pd	Male	Biology Teacher
24.	Dra. Puspita Anggraini	Female	History Teacher
25.	Tuasdin Saragih, S.Pd	Male	Lampung Language Teacher
26.	Sugiono,S.Pd	Female	Sport Teacher
27.	Dra. Lina Basiana	Female	Chemistry Teacher

28.	Drs. Triwoko Heri S.	Male	Accountancy Teacher
29.	Susanti Prihartini,S.Pd.	Female	Mathematics Teacher
30.	Drs. Apredi	Male	Sport Teacher
31.	Dra. Akonita	Female	Counselor
32.	Dra. Sriwati	Female	Indonesian Languange Teacher
33.	YamirSugiyono, S.Pd	Male	Mathematics Teacher
34.	Dra.Ade Rosimah	Female	Indonesian Language Teacher
35.	Drs. Maksum	Male	Islamics Teacher
36.	Drs. Kusprianto	Male	Chemistry Teacher
37.	Surati,S.Pd	Male	Mathematics Teacher
38.	Dra. Ratna Multiwinarsih	Female	TIK Teacher
39.	Drs. Ponco HeruSutanto	Male	Indonesian Language Teacher
40.	Iik Atikah M.Pd.	Female	Geography Teacher
41.	Sri Hartati S.Pd	Female	Islamic Teacher
42.	Sri MulyaniS.Pd	Female	Biology Teacher
43.	Rosdiana, S.Pd	Female	Art Teacher
44.	EstiyaHayati S.Pd	Female	Economic Teacher
45.	Karminah,S.S n.	Female	Indonesian Language Teacher
46.	FaisolArdi ,S.Pd	Male	Physics Teacher
47.	AuliaVitari,ST	Female	Chemistry Teacher
48.	Rita Kurniasih , S.Pd	Female	Sociology Teacher
49.	Lilik Toyibah,S.Pd	Female	Art Teacher
50.	Karmana,SE	Female	Economic Teacher
51.	Fitriana,S.Pd	Female	Biology Teacher
52.	EndahWahyuningsih,S.Pd.Si	Female	Chemistry Teacher
53.	Anissa Septya Ningrum,S.Si	Female	Chemistry Teacher
54.	W.F. Novitasari,S.Si	Female	Sociology Teacher
55.	Alfisah Anggraini, S.Ag	Female	Islamic Teacher
56.	LoviaNirmala,S.Pd.	Female	English Teacher
57.	Sri Widayati,S.Pd	Female	PKN Teacher
58.	Djumali, S.Pd	Male	PKN Teacher
59.	Vitantina Lumbanraja, S. Kom	Female	TIK Teacher
60.	TikaAriatni, S.Pd.	Female	Library Guard
61.	Suparminto	Male	Library Guard
62.	Tri Suliyah	Female	Chief of Administration
63.	Sri Lestari	Female	Official Employe
64.	YuliSumitro	Female	Official Employe

65.	Suyono	Male	Official Employe
66.	Siti Nuraini	Female	Official Employe
67.	Sri UtamiDewi	Female	Official Employe
68.	Sukadi	Male	Official Employe
69.	Sumaryanto	Male	Official Employe
70.	Angga Prasetya,A.Md	Male	Official Employe
71.	Luckty Gian Soekarno	Female	Librarian
72.	Aida Fetra, S.Si	Female	Laboran
73.	Husna Mursyida, S.Si	Female	Laboran
74.	Siwi Triwuryanti, S.Pd	Female	Laboran

Source: documentation of SMAN 2 Metro gathered on 4th, August 2017.

e. **Condition of Students**

The condition of students in SMAN 2 Metro is stated as follows:

Table 12: Recapitulation of Students in SMAN 2 Metro

NO	Classes	Sex		Total
		Male	**Female**	
1.	Class X	80	202	282
2.	Class XI	113	144	257
3.	Class XII	102	130	246
Total		**295**	**476**	**785**

Source: documentation of SMAN 2 Metro gathered on 4th, August 2017.

f. **Condition of Facilities**

The condition of facilities in SMAN 2 Metro is stated below:

Table 13: Recapitulation Facilities in SMAN 2 Metro

NO	FACILITIES	QUANTITY
1	Classroom (Class X-XII)	27

2	Headmaster Room	1
3	Teacher Room	1
4	TU Room	1
5	Counseling Room	1
6	Laboratory	4
7	Library	1
8	OSIS Room	1
9	Mosque	1
10	Warehouse	1
11	Parking Area	1
12	Teacher Toilet	1
13	Student Toilet	3
14	Canteen	5

Source: documentation of SMAN 2 Metro gathered on 4th, August 2017.

g. Location Sketch of SMAN 2 Metro

Location sketch of SMAN 2 Metro is stated below:

Figure 5: Location Sketch of SMAN 2 Metro

| RK 19 | RK 18 | RK 17 | RK 16 | RK 15 | RK 14 | RK 13 | RK 12 | RK 11 | RK 10 | RK 9 | Toilet |

RK 20

RK 8

S

RK 7

cantee | Safety Place

Toilet

RK 6

Basket Ball Field

Rencana Gudang | Multi media | Comp uter Lab

Library

RK 22

Counsel or and Guest | Headmaster and Offical Employe

Teacher Room | Physics Laboratory | RK 21

RK 5

RK 4

Chemistry Lab | RK 1 | RK 2

RK 3

Toile t

Mosque | Security | Entrance
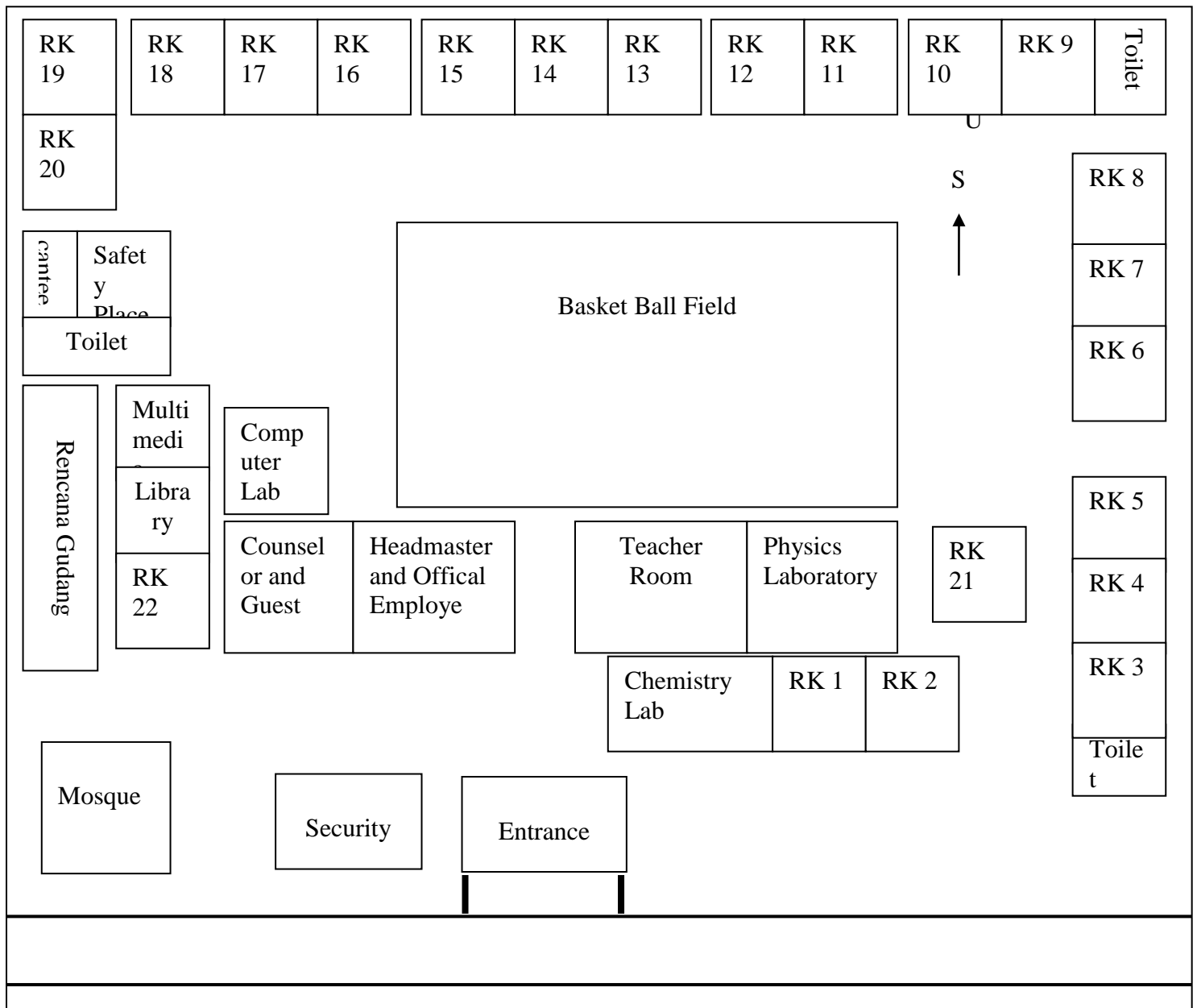
Source: documentation of SMAN 2 Metro gathered on 4th, August 2017.

2. Description of The Research Data

a. Pre-test Result

The researcher conducted pre-test on 21th, July 2017. It was done to find out the students' basic knowledge towards grammatical cohesion in essay writing before giving treatment. The result of preliminary test could be seen as follows:

Table 14:
The students' pre-test result towards grammatical cohesion in essay writing at the eleventh grade of SMAN 2 Metro

No	Codes of Respondents	Pre-test Scores
1	AP	50
2	AS	73
3	ASS	81
4	EMW	72
5	FYS	42
6	FT	58
7	FR	72
8	IW	73
9	IS	60
10	KK	60
11	LK	71
12	MFAG	58
13	MMP	59
14	ND	78
15	NMN	73
16	NAO	67
17	PH	73
18	PP	73
19	PRA	80
20	RF	73
21	RR	55
22	RA	42
23	SWP	78
24	SM	72
25	SNSB	58
26	TS	78
27	VPR	55
28	VWH	73
29	WNA	50
30	YAL	72
	Total	1979
	Average	66

Source: documentation of pre-test result of grammatical cohesion in essay writing gathered on 21th, July 2017.

From the data above, it could be found that the highest scores was 81 and the lowest scores was 42. In line with the data, the researcher measured the class interval by using the formula as follows:

K = 1 + 3,3 log n

K = 1 + 3,3 log 30

K = 1 + 3,3 x 1,477

K = 1 + 4,77

K = 5, 77 = 6

R = the highest scores – the lowest scores

R = 81 - 42

R = 39

$$I = \frac{R}{K}$$

$$I = \frac{39}{6}$$

I = 6.5 = 7

Where:

K = number of interval class

R = distance of maximum and minimum scores

I = length of interval class (total of interval class)

N = total participants/students

The total of interval class (I) in this research was 7. Then, it was used to measure the data by presenting it on the table of frequencies distribution below:

Table 15:
Table of frequency distribution of students' pre-test result towards grammatical cohesion in essay writing at the eleventh grade of SMAN 2 Metro

| No	Interval Classes	Frequencies	Percentages
1	77 – 83	5	16.67%
2	70 – 76	12	40%
3	63 – 69	1	3.33%
4	56 – 62	6	20%
5	49 – 55	4	13.33%
6	42 – 48	2	6.67%
	Total	30	100%

Figure 6:
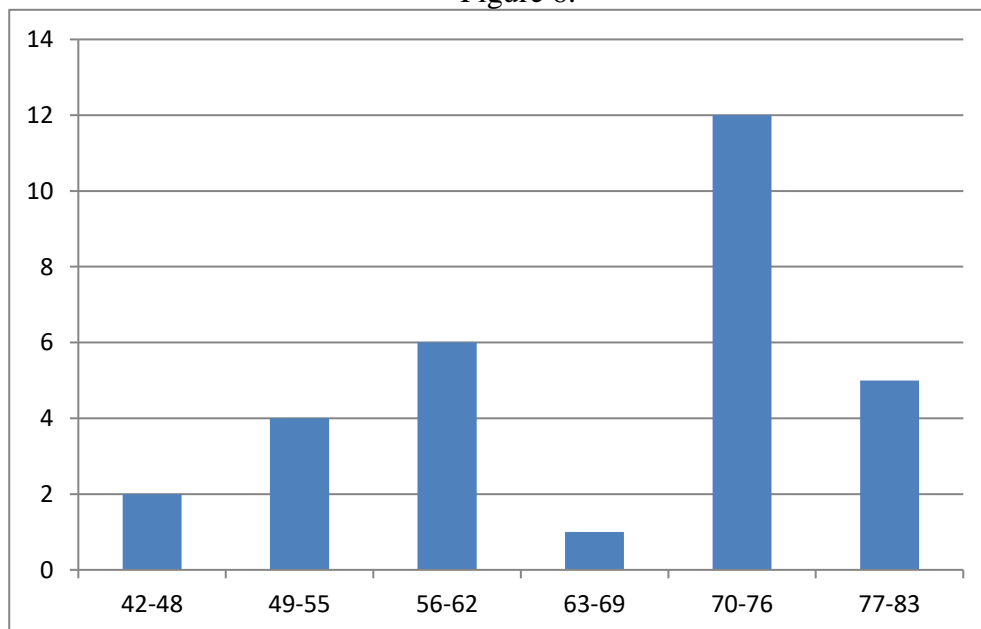
Figure of students' pre-test result result towards grammatical cohesion in essay writing at the eleventh grade of SMAN 2 Metro.

Further, based on the table of frequency distribution above, it could be inferred that from 30 students as the sample of the research, just for about

5 students who had got the score similar to or higher than MMC, which is 78. The data revealed that 2 students got the score between 42 – 48 or as many as 6.67%. Next, there were 4 students got the score between 49 – 55 or as many as 13,33%. There were 6 students who got the score between 56 – 62 or in the other words, as many as 20%. Besides, there were 1 students who got the score between 63 - 69 and 12 students got the score between 70 - 76 in percentage of 3.33% and 40% of each. The last, there were 5 students who got the score between 77 – 83 or as many as 16.67%.

In summary, from the result of pre-test, the researcher found that the students' problem was in using ineffective strategy in teaching learning process. As a result, most of the students got the scores lower than MMC.

b. Post-test Result

After considering the pre-test result of grammatical cohesion in essay writing, the researcher conducted the treatment of concept mapping to help the students getting better understanding of grammatical cohesion. Beware of that, the researcher identified the students' difficulty in essay writing and offered concept mapping strategy to know if there was positive and significant influence of it.

Furthermore, after the students in this class had been given the treatment of concept mapping strategy and they had understood already, the researcher gave the post-test to measure their grammatical cohesion in essay writing. The result of post-test could be seen below:

Table 16:

The students' post-test result towards grammatical cohesion in essay writing at the eleventh grade of SMAN 2 Metro

No	Codes of Respondents	Post-test Scores
1	AP	67
2	AS	71
3	ASS	88
4	EMW	81
5	FYS	72
6	FT	61
7	FR	78
8	IW	84
9	IS	68
10	KK	81
11	LK	80
12	MFAG	65
13	MMP	78
14	ND	71
15	NMN	86
16	NAO	55
17	PH	81
18	PP	73
19	PRA	85
20	RF	81
21	RR	74
22	RA	86
23	SWP	85
24	SM	84
25	SNSB	76
26	TS	81
27	VPR	55
28	VWH	63
29	WNA	78
30	YAL	86
	Total	2274
	Average	76

Source: documentation of post-test result of grammatical cohesion in essay writing gathered on 4th, August 2017.

From the data above, it could be found that the highest scores was 88 and the lowest scores was 55. In line with the data, the researcher measured the class interval by using the formula as follows:

K = 1 + 3,3 log n

K = 1 + 3,3 log 30

K = 1 +3,3 x 1,47

K = 1 +4,87

K = 5, 87 = 6

R = the highest scores – the lowest scores

R = 88 – 55

R = 33

$I = \dfrac{R}{K}$

$I = \dfrac{33}{6}$

I = 5,5 = 6

Where:

K = number of interval class

R = distance of maximum and minimum scores

I = length of interval class (total of interval class)

N = total participants/students

The total of interval class (I) in this research was 6. Then, it was used to measure the data by presenting it on the table of frequencies distribution below:

Table 17:
Table of frequency distribution of students' post-test result towards grammatical cohesion in essay writing at the eleventh grade of SMAN 2 Metro

No	Interval Classes	Frequencies	Percentages
1	85 – 90	6	20%
2	79 – 84	8	26.67%
3	73 – 78	6	20%
4	67 – 72	5	16.67%
5	61 – 66	3	10%
6	55 – 60	2	6.67%
	Total	30	100%

Figure 7:
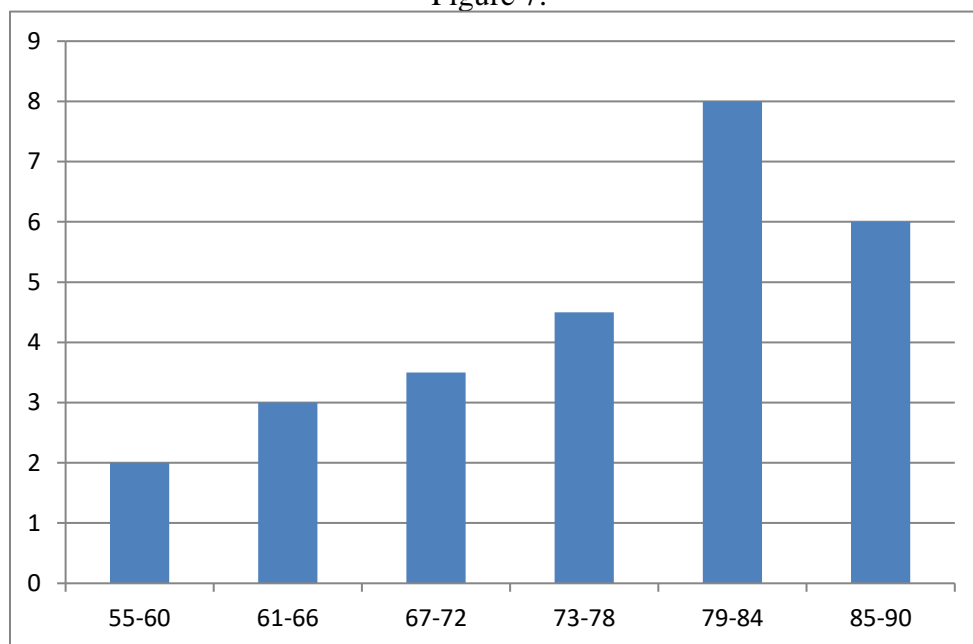
Figure of students' post-test result result towards grammatical cohesion in essay writing at the eleventh grade of SMAN 2 Metro

Further, based on the table of frequency distribution above, it could be inferred that from 30 students as the sample of this research, there were 17 students got the score similar to or higher than MMC, which is 78. To be known, there were 2 students who got the score between 55-60 or as many as 6.67%, and there were 3 students who got the score between 61-66 or as many as 10% and there were 5 students who got the score between 67-72

or as many as 16.67%. In addition, there were 6 students who got the score between 73 – 78 or as many as 20% and there were 8 students who got the score between 79-84 or as many as 26.67%. The last, there were 6 students who got the score between 85-90 or as many as 20%.

To sum up, the post-test result was categorized into sufficient category even though several students was still lack on grammatical cohesion in essay writing, but on the whole, there was certain influence to help the students get better understanding.

B. Hypothesis Testing

After gathering the data, the researcher analyzed the data by using chi-square and t-test in order to prove whether there was a positive and significant influence of using concept mapping strategy on students grammatical cohesion in essay writing at the eleventh grade of SMAN 2 Metro, as follows:

1. **Getting the data into the formula of chi-square (χ^2)**

   After holding the essay test, the researcher analyzed the data by using chi-square in order to prove whether there was any significant and positive influence of concept mapping strategy on students' grammatical cohesion in essay writing at the eleventh grade of SMAN 2 Metro as stated below:

$$x^2 = \sum \left[\frac{(Fo - Fe)^2}{Fe} \right]$$

Table 19:

The Contingency Table of The Expected Frequencies of The Result of
Students' Pre-test and Post-test

Variables	Categories					Total
	Excellent	Good	Fair	Poor	Failed	
Pre-test	1 0	2 6	3 12	4 10	5 2	$r_n = 30$
Post-test	6 3	7 15	8 10	9 2	10 0	$r_n = 30$
Total	$c_n = 3$	$c_n = 21$	$c_n = 22$	$c_n = 12$	$c_n = 2$	$n = 60$

Hypothesis testing by using chi-square was analyzed as follows:

Table 20:
Testing of The Data

Sel:	f_o	$f_e = \dfrac{c_n x\ r_n}{n}$	$f_o - f_e$	$(f_o - f_e)^2$	$\dfrac{(f_o - f_e)^2}{f_e}$
1	0	$\dfrac{3\ x\ 30}{60} = 1.5$	-1.5	2.25	1.5
2	6	$\dfrac{21\ x\ 30}{60} = 10.5$	-4.5	20.25	1.928
3	12	$\dfrac{22\ x\ 30}{60} = 11$	1	1	0.195
4	10	$\dfrac{12\ x\ 30}{60} = 6$	4	16	0.090
5	2	$\dfrac{2\ x\ 30}{60} = 1$	1	1	1
6	3	$\dfrac{3\ x\ 30}{60} = 1.5$	1.5	2.25	1.5
7	15	$\dfrac{20\ x\ 30}{60} = 10$	5	25	2.5
8	10	$\dfrac{23\ x\ 30}{60} = 11.5$	-1.5	2.25	0.195
9	2	$\dfrac{12\ x\ 30}{60} = 6$	-4	16	2.667
10	0	$\dfrac{2\ x\ 30}{60} = 1$	-1	1	1
Total	$n = 60$	$f_t = 60$			$X^2 = 15.047$

Accordingly, the value of chi-square was 15,72. Then, to know the
critical value of chi square, the researcher counted df at first that stands
for degrees of freedom. The formulation of df was:

$$df = (c - 1)(r - 1)$$

Where:

df = number of degrees of freedom

c = number of columns

r = number of rows

df = (5-1)(2-1)=4

Table 21:
Critical Value of Chi-Square

Degrees of Freedom	Level of Significant	
	5%	1%
df4	9.488	13.227

a. The critical value of x^2 table for 5% level was 9.488.

b. The critical value of x^2 table for 1% level was 13.227.

From all data analysis above, it could be known that:

1) $x^2_{observed} = 15.72$

2) $x^2_{table \ or \ expectacy} = 5\%$ (9.488) and 1% (13.227)

The degrees of freedom is 4. Therefore, the values of x^2_{table} on degrees of freedom in the level of 5% are 9.488 and in the level of 1% are 13.227. From the data above, it revealed the comparison between Fo and Ft was: 9.488<15.72>13.227 in the level of significant of 5% and 1%. It meant that the alternative hyphothesis (Ha) which explained "there is a positive and significant influence of using

concept mapping strategy on students' grammatical cohesion in essay writing" was accepted and Ho was rejected.

2. Getting the data into the formula of t-test

To find whether there was positive and significant influence of concept mapping strategy on students' grammatical cohesion in essay writing at the eleventh grade of SMAN 2 Metro. The researcher used the t-test formula. The researcher prepared the table and put the data into the formula of t-test below to get t_observed.

Table 22:
The scores of pre-test and post-test result of grammatical cohesion in essay writing at the eleventh grade of SMAN 2 Metro

No	Codes of Resp	Pre-test (X_1)	Post-test (X_2)	D $(X_2 - X_1)$	$D^2 = (X_2 - X_1)^2$
1	AP	50	67	17	289
2	AS	73	71	-2	4
3	ASS	81	88	7	49
4	EMW	72	81	9	81
5	FYS	42	72	30	900
6	FT	58	61	3	9
7	FR	72	78	6	36
8	IW	73	84	11	121
9	IS	60	68	8	64
10	KK	72	81	9	81
11	LK	71	80	9	81
12	MFAG	58	65	7	49
13	MMP	59	78	19	361
14	ND	78	71	-7	49
19	PRA	80	85	5	25
20	RF	73	81	8	64
21	RR	55	74	19	361
22	RA	42	86	44	1936
23	SWP	78	85	10	100
24	SM	72	84	12	144
25	SNSB	58	76	18	324
26	TS	73	81	8	64
27	VP	55	55	0	0
28	VW	73	63	-10	100

29	WN	50	78	28	784
30	YAL	60	86	36	676
		$\sum X_1$ = 1974	$\sum X_2$ = 2274	$\sum D = 313$	$\sum D^2 = 7129$

Average of D = 10.433

Therefore, the data was put into the formula of t-test then calculated it.

It could be calculated by using the formula below:

$$t = \frac{D}{\sqrt{\frac{\sum D^2 - \frac{(D)^2}{N}}{N(N-1)}}}$$

$$t = \frac{10.433}{\sqrt{\frac{7129 - \frac{(313)^2}{30}}{30(30-1)}}}$$

$$t = \frac{10.433}{\sqrt{\frac{7129 - 3265.63}{30(30-1)}}}$$

$$t = \frac{10.433}{\sqrt{\frac{3863.36}{870}}}$$

$$t = \frac{10.433}{\sqrt{4.440}}$$

$$t = \frac{10.433}{2.107}$$

$$t = 4.951$$

To be known, $t_{observed}$ was 4.951 as the result of counting by using t-test formula above. Meanwhile, the critical value of t-test (t_{table}), the researcher firstly counted df, df is degree of freedom. The formulation of df = N − 1. N is the number of research population:

df = N − 1

= 30 − 1

= 29

After considering the t_{table} by using df which was 29. The critical value of t_{table} was as follows:

Table 23:
Critical Value of t_{table}

Degrees of Freedom	Level of Significant	
	5%	1%
df 29	2.045	2.756

To df 29 with the level of significant in 5% was 2.045 and in 1% was 2.756 by $t_{observed}$ was 4.951. Then, the data confirmed that t_{table} 2.045 < $t_{observed}$ 4.951 > t_{table} 2.756.

C. Interpretation

1. Interpretation of $x^2_{observed}$

   a. If $x^2_{observed}$ > x^2_{table}, Ha is accepted and Ho is rejected.

   b. If $x^2_{observed}$ < x^2_{table}, Ha is rejected and Ho is accepted.

The critical value of $\chi^2{}_{observed}$ was 15.047 which meant that Ha was accepted and Ho was rejected. To conclude, the use of concept mapping strategy could influence students' grammatical cohesion in essay writing at the eleventh grade of SMAN 2 Metro.

2. Interpretation of $t_{observed}$

   a. If $t_{observed} > t_{table}$, Ha is accepted and Ho is rejected.

   b. If $t_{observed}$ ˏ t_{table}, Ha is rejected and Ho is accepted.

   Finally, the data confirmed that $t_{observed} = 4.951$ was higher than t_{table} 2.045 in the level of 5% and 2.756 in the level of 1%. It meant that Ha was accepted and Ho was rejected. Therefore, it could be concluded that "there was a positive and significant influence of using concept mapping strategy on students' grammatical cohesion in essay writing at the eleventh grade of SMAN 2 Metro".

D. Discussion

In this research, there were two variables consisting of independent variable and dependent variable. Independent variable (X) was concept mapping strategy and dependent variable (Y) was grammatical cohesion in essay writing. Based on the data analysis, the researcher concluded that concept mapping strategy was an alternative strategy that had influence on students' grammatical cohesion. On account for this, it could be seen by the result of pre-test and post-test. Students of the eleventh grade of SMAN 2 Metro, particularly XI IPA 2 had done pre-test and post-test whereby before holding

the post-test, the researcher gave them certain treatment that consisted of concept mapping strategy.

Similarly, the score they had got before and after treatment was so different that in the pre-test, the average score of class was 66. Meanwhile, the average score of class in the post-test was 76. In conclusion, the result of this research was $t_{observed} > t_{table}$ (2.045 < 4.951 > 2.756) which revealed that Ha was accepted and Ho was rejected. In other words, there was a positive and significant influence of using concept mapping strategy on students' grammatical cohesion in essay writing at the eleventh grade of SMAN 2 Metro.

To be exact, through concept mapping as an alternative strategy, the students learnt such a newest experience in learning English. More precisely, there is a positive and significant influence of using concept mapping strategy on students' grammatical cohesion in essay writing after treatment. The fact showed that there was a change at the amount of the students who got lower scores. By using concept mapping strategy, it made the students easier to elaborate their thoughts and dig up new idea more and more. At the end, they were able to implement their notions in the shape of writing without losing the significance of cohesion especially grammatical cohesion. This strategy was also able to let the students add or erase what they thought was in need and vice versa.

Lastly, concept mapping strategy could be a solution for teaching learning process especially in writing because it made the students more active while learning. Too, they were given much more opportunities to explore all their

ideas. By using this strategy, teaching and learning process was more interesting, enjoyable and fun because it included visual capability and creativity among students so that they might take part better during learning process.

E. Limitation

This research was conducted only at the eleventh grade of SMAN 2 Metro with the purpose to see whether there was any positive and significant influence of using concept mapping strategy on students' grammatical cohesion. In other words, the result of this research could not be generalized. Consequently, the result might be different if it was conducted in any other circumstances.

CHAPTER V

CONCLUSION AND SUGGESTION

A. Conclusion

Based on the result of the research, the use of concept mapping strategy had positive and significant influence on students' grammatical cohesion in essay writing at the eleventh grade of SMAN 2 Metro. This significant and positive influence were caused by concept mapping strategy that gave the students an opportunity to consider the appropriate grammatical cohesion such as references and conjunctions that might appear so that their essay became cohesive and readable.

In addition, by using this strategy, the students were able to maximalize theri mind through thinking creatively and logically. The researcher observed that the students were no longer use mobile phone to generate ideas and translate difficult words, but they used their creativity to make their ideas logic and linear instead. They also tend to use simple words and simple sentences but those were real from their mind without intervention from mobile phone. Through this strategy, the students were brave to express their notions without any fear of making mistakes, because of the flexibility of concept mapping which enabled them to add what they thought was in need or to erase what they thought was not in need.

B. Suggestion

Based on the experience, observation and the result of the research, the researcher suggested certain suggestion to:

1. The students

    First, the students have to be brave to elaborate their thoughts and notions without any fear of making mistakes so that they will be able to avoid using HP during learning process, especially using online translator. Second, the students must be creative to dig up what appear in their mind more and more, to express what they feel in the frame of writing and to enrich their vocabularies. The last, the researcher suggested that the students think linear and logic when they are asked to express their ideas particularly in writing.

2. The Teachers

    The teachers must encourage students to feel free to enlarge their ideas and notions without thinking it will go wrong or it will go right. The essence of learning is when there is any change of students' habit, and the researcher suggested that the very first stage of changing students' habit is to encourage them not to be afraid to make mistakes. Through this strategy, the teachers can give a chance for the students to feel free to express their notions as much as they want.

3. The Headmaster

It is better for the headmaster to facilitate this strategy to the teachers in all subjects of lessons so that it may be a new and fresh strategy which may fit to certain subjects.

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DOCUMENTATION

1. Pre-test

The researcher explained the direction to the students

The researcher helped the students to translate certain words they didn't know

2. Treatment

The researcher helped the students who didn't understand

The researcher explained the materials in the white board

3. Post-test

The researcher surrounded the class to control learning process

The researcher paid attention to the student

TABLE OF CHI-SQUARE

Table A.5 Table of x^2

df	.99	.98	.95	.90	.80	.70	.50	.30	.20	.10	.05	.02	.01	.001
1	.000157	.000628	.00393	.0158	.0642	.148	.455	1.074	1.642	2.706	3.841	5.412	6.635	10.827
2	.0201	.0404	.103	.211	.446	.713	1.386	2.408	3.219	4.605	5.991	7.824	9.210	13.815
3	.115	.185	.352	.584	1.005	1.424	2.366	3.665	4.642	6.251	7.815	9.837	11.345	16.266
4	.297	.429	.711	1.064	1.649	2.195	3.357	4.878	5.989	7.779	9.488	11.668	13.277	18.467
5	.554	.752	1.145	1.610	2.343	3.000	4.351	6.064	7.289	9.236	11.070	13.388	15.086	20.515
6	.872	1.134	1.635	2.204	3.070	3.828	5.348	7.231	8.558	10.645	12.592	15.033	16.812	22.457
7	1.239	1.564	2.167	2.833	3.822	4.671	6.346	8.383	9.803	12.017	14.067	16.622	18.475	24.322
8	1.646	2.032	2.733	3.490	4.594	5.527	7.344	9.524	11.030	13.362	15.507	18.168	20.090	26.125
9	2.088	2.532	3.325	4.168	5.380	6.393	8.343	10.656	12.242	14.684	16.919	19.679	21.666	27.877
10	2.558	3.059	3.940	4.865	6.179	7.267	9.342	11.781	13.442	15.987	18.307	21.161	23.209	29.588
11	3.053	3.609	4.575	5.578	6.989	8.148	10.341	12.899	14.631	17.275	19.675	22.618	24.725	31.264
12	3.571	4.178	5.226	6.304	7.807	9.034	11.340	14.011	15.812	18.549	21.026	24.054	26.217	32.909
13	4.107	4.765	5.892	7.042	8.634	9.926	12.340	15.119	16.985	19.812	22.362	25.472	27.688	34.528
14	4.660	5.368	6.571	7.790	9.467	10.821	13.339	16.222	18.151	21.064	23.685	26.873	29.141	36.123
15	5.229	5.985	7.261	8.547	10.307	11.721	14.339	17.322	19.311	22.307	24.996	28.259	30.578	37.697
16	5.812	6.614	7.962	9.312	11.152	12.624	15.338	18.418	20.465	23.542	26.296	29.633	32.000	39.252
17	6.408	7.255	8.672	10.085	12.002	13.531	16.338	19.511	21.615	24.769	27.587	30.995	33.409	40.790
18	7.015	7.906	9.390	10.865	12.857	14.440	17.338	20.601	22.760	25.989	28.869	32.346	34.805	42.312
19	7.633	8.567	10.117	11.651	13.716	15.352	18.338	21.689	23.900	27.204	30.144	33.687	36.191	43.820
20	8.260	9.237	10.851	12.443	14.578	16.266	19.337	22.775	25.038	28.412	31.410	35.020	37.566	45.315
21	8.897	9.915	11.591	13.240	15.445	17.182	20.337	23.858	26.171	29.615	32.671	36.343	38.932	46.797
22	9.542	10.600	12.338	14.041	16.314	18.101	21.337	24.939	27.301	30.813	33.924	37.659	40.289	48.268
23	10.196	11.293	13.091	14.848	17.187	19.021	22.337	26.018	28.429	32.007	35.172	38.968	41.638	49.728
24	10.856	11.992	13.848	15.659	18.062	19.943	23.337	27.096	29.553	33.196	36.415	40.270	42.980	51.179
25	11.524	12.697	14.611	16.473	18.940	20.867	24.337	28.172	30.675	34.382	37.652	41.566	44.314	52.620
26	12.198	13.409	15.379	17.292	19.820	21.792	25.336	29.246	31.795	35.563	38.885	42.856	45.642	54.052
27	12.879	14.125	16.151	18.114	20.703	22.719	26.336	30.319	32.912	36.741	40.113	44.140	46.963	55.476
28	13.565	14.847	16.928	18.939	21.588	23.647	27.336	31.391	34.027	37.916	41.337	45.419	48.278	56.893
29	14.256	15.574	17.708	19.768	22.475	24.577	28.336	32.461	35.139	39.087	42.557	46.693	49.588	58.302
30	14.953	16.306	18.493	20.599	23.364	25.508	29.336	33.530	36.250	40.256	43.773	47.962	50.892	59.703

TABLE OF T-TEST

Table A.2	Table of t Values					
	Level of Significance for a Directional (One-Tailed) Test					
	.10	.05	.025	.01	.005	.0005
	Level of Significance for a Nondirectional (Two-Tailed) Test					
df	.20	.10	.05	.02	.01	.001
1	3.078	6.314	12.706	31.821	63.657	636.619
2	1.886	2.920	4.303	6.965	9.925	31.598
3	1.638	2.353	3.182	4.541	5.841	12.941
4	1.533	2.132	2.776	3.747	4.604	8.610
5	1.476	2.015	2.571	3.365	4.032	6.859
6	1.440	1.943	2.447	3.143	3.707	5.959
7	1.415	1.895	2.365	2.998	3.499	5.405
8	1.397	1.860	2.306	2.896	3.355	5.041
9	1.383	1.833	2.262	2.821	3.250	4.781
10	1.372	1.812	2.228	2.764	3.169	4.587
11	1.363	1.796	2.201	2.718	3.106	4.437
12	1.356	1.782	2.179	2.681	3.055	4.318
13	1.350	1.771	2.160	2.650	3.012	4.221
14	1.345	1.761	2.145	2.624	2.977	4.140
15	1.341	1.753	2.131	2.602	2.947	4.073
16	1.337	1.746	2.120	2.583	2.921	4.015
17	1.333	1.740	2.110	2.567	2.898	3.965
18	1.330	1.734	2.101	2.552	2.878	3.922
19	1.328	1.729	2.093	2.539	2.861	3.883
20	1.325	1.725	2.086	2.528	2.845	3.850
21	1.323	1.721	2.080	2.518	2.831	3.819
22	1.321	1.717	2.074	2.508	2.819	3.792
23	1.319	1.714	2.069	2.500	2.807	3.767
24	1.318	1.711	2.064	2.492	2.797	3.745
25	1.316	1.708	2.060	2.485	2.787	3.725
26	1.315	1.706	2.056	2.479	2.779	3.707
27	1.314	1.703	2.052	2.473	2.771	3.690
28	1.313	1.701	2.048	2.467	2.763	3.674
29	1.311	1.699	2.045	2.462	2.756	3.659
30	1.310	1.697	2.042	2.457	2.750	3.646
40	1.303	1.684	2.021	2.423	2.704	3.551
60	1.296	1.671	2.000	2.390	2.660	3.460
120	1.289	1.658	1.980	2.358	2.617	3.373
∞	1.282	1.645	1.960	2.326	2.576	3.291

Source: From *Statistical Tables for Biological, Agricultural, and Medical Research,* edited by R. A. Fisher and

CURRICULUM VITAE

The name of the writer is Rosita Aryani. She was born in Metro, in September 6, 1995. She is the last child of Mr. Ahmad Riady Abdullah and Mrs. Dewi Ningsih.

She enrolled her study at TK Kartika Chandra, Metro, in 1999-2001. Then, she underwent her study at SDN 1 Metro Pusat in 2001-2007. Soon after that, she continued to Junior High School at SMP N 3 Metro Pusat, Metro in 2007-2010. She stood her study at SMAN 2 Metro in 2010-2013. It was long journey for her to find out her dream. After graduating from senior high school, she decided to take a lecture in English Education Department of IAIN Metro. Hopefully, she can do anything best to increase and to apply her knowledge wisely.