Spreading Activation Network Model as a Tactic in Writing Task for 10th grade Students of Don Bosco Senior High School, Semarang

A THESIS

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CHAPTER 1

INTRODUCTION

In this chapter researcher tells about the background of the study, statement of the problem, objective of the study, significant of the study, underlying theories, scope of the study, research method, and definition key terms.

1.1 Background of the study

In studying English, there are several tasks that must be learned by the second language learners. They are reading, writing, speaking, and listening. Reading is used to practice their fluency in reading texts, especially new ones. Writing is used to practice their understanding in using grammar, vocabularies, and also tenses. Speaking is used to practice their vocabularies, grammar and also their understanding in using tenses, but the main point in using this one is their mental, whether they are brave or not. Listening is used to measure their listening ability in understanding English words and also sentences.

For foreign language learners, all of them are difficult, especially in speaking and writing. The ability to write well is not a naturally acquired skill; it is usually learned or culturally transmitted as a set of practices in

formal instructional settings or other environments. Writing skills must be practiced and learned through experience. Writing also involves composing, which implies the ability either to tell or retell pieces of information in many forms such as narratives, description, or explanation to transform information into new texts, as in expository or argumentative writing. Perhaps it is best viewed as a continuum of activities that range from the more mechanical or formal aspects of "writing down" on the one end, to the more complex act of composing on the other end (Omaggio Hadley, 1993, 54). The act of composing can create problems for the learners, especially for the foreign language learners. Expressing new idea or retelling it also can cause difficulties, because it is transforming new information or retelling it, which is also more complex in writing than telling.

In terms of language skills, there are four skills that required in learning language. They are listening, speaking, reading, and writing. Listening and reading are receiptive skills, while speaking and writing are productive skills (Harmer: 2001). Those skills should be well mastered by students; especially the productive skills, in order to be able to create an effective communication. In this research, the researcher proposed a method, Spreading Activation Network Model in order to hopefully help students to solve the problems in expressing their ideas in a written form. This model is used as a tool to help

the students to connect their ideas with some nodes that contains words. From those words, they will use them to make a good writing form. This is class A.

In teaching the model to class A, he also gave a module to the students for helping him to teach the model easily and help the students in understanding how to make and use the model quickly. He chose the Spreading Activation Network model because this model is related with cognitive process. It means that this model can eliminate the cognitive problems for the foreign language learners; in this part is class A students.

In this research report, the researcher is going to discuss more about writing, and also the problems. In the end he is going to give the solution to the problems by using the spreading activation network model, which I believe it can solve the problems faced by the second language learners.

1.2 Statement of the problem

How effective is the spreading activation network model as a tactic in solving the writing task problem for the General English students of Don Bosco High School, Semarang?

1.3 Objective of the study

The purpose of this study is to know how effective the network spreading activation network model for the foreign language learners in

solving the writing problems and also help them learn & understand the new vocabularies of the target language by using spreading activation network model.

1.4 Significant of the study

a) Theoretically : To contribute the writing task theories to the readers

b) Practically : The result of this research can be applied in helping the foreign language students in dealing the writing task problems practically

c) Pedagogically : Spreading Activation Network model can be one of the solutions in solving the writing problems for the students.

1.5 Underlying theories

Teachers, especially writing, are mostly concerned with the writing result. This is usually happened because the teacher only focused on the result, not the process. The process which shows how far the students' skill and knowledge improve are being put aside or ignored.

A product-oriented approach to the development of writing favors classroom activities in which the learner is engaged in imitating, copying and transforming models of correct language. This usually occurs at the level of the sentence (Nunan, 1991). From Nunan's words we can see that the approach is focusing on the result, not the steps. Actually, this product-

oriented is out of date and it is not appropriate again to be applied in teaching, Unfortunately, this method is still used by most of the teacher. Based on Nunan (1991) observation, he showed that, instead of looking at completed texts, teachers of writing have become much more interested in the processes writers go through in composing them. A good writer does not born instantly; it needs a lot of process of practicing and also through many drafts of the writing result, until it reaches perfection.

The process of writing is not an easy one. It needs a lot of steps until a good writing result achieves. It involves many twists and turns, moving back and forth in making a good writing result. Role of the teacher in this part is just a facilitator, to facilitate a good knowledge for the students, not as an instructor, who only instructs the students without assist them. This kind of role can motivate the students in making a good writing result.

Zamel (1987: 697-715) said that the writing class should take into account the learners' purposes. The idea behind process writing is not to dissociate writing entirely from the written product and to merely lead students through the various stages of the writing process but "to construct process-oriented writing instruction that will affect performance (Freedman, 1987). To have an effective performance oriented teaching program would mean that we need to systematically teach students problem-solving skills connected with the writing process (Seow, 2002).

Skills in writing can improve faster when a student feels free in choosing the writing's theme, chances in writing is available for the students, and also feels motivated when the others think the writing result of the student is good. Problem-solving skills or tools are also important in improving the writing result. So, it is important for the teachers to understand this kind of skill or tool, so the teacher can use these as a way out when the students face a dead end.

Despite insights into the complexities of the composing process revealed by process-oriented studies, most writing classes are still based on mechanistic, product-oriented activities which research has largely discredited (Zamel, 1987: 697-715). This kind of problem still happens in education field. The teachers still focus on the result not the process. They only focus on one side only, for example the grammar, fluency of writing is not a headline, they only show the steps in making a good writing result, without further explanation. Moreover, in spite of the studies conducted on the great role of psychological/affective factors on the development of the writing skill (Dornyei, 2003: 3-32), teachers mainly focus on the formal aspects of their students' written works not only when they are teaching but also when they are providing feedback to them without paying attention to how their approach might affect the students' self-confidence, attitude to writing in foreign language, and the motivation to write among many other affective

reactions. As a teacher, in giving a feedback about the students' work not only can help them but also can destroy the students' motivation. Being smart is not only the important thing, but a good teacher which can motivate the students is also important.

Spreading Activation is a technique made by cognitive scientists in order to understand the learning processes that take place to form learning networks.

Researchers in the field of Artificial Intelligence have emulated this process in a variety of ways and applied spreading activation over a semantic network to solve several important problems in Artificial Intelligence (J-P. Corriveau, 1994: 73-81). Such an approach has also been applied for machine learning in engineered systems, such as in the field of robotics (S. Bagchi, 2000: 639-650).

Some of the main characteristics of Spreading activation include that are important to this work are (J-P. Corriveau, 1994: 73-81):

a) Spreading activation subsumes both marker passing and local connectionism.

b) Since spreading activation is a distributed process, information must be localized at each node in the network.

c) Spreading activation is therefore the passing of messages – of arbitrary complexity – between concurrent objects – of arbitrary complexity.

Recently, spreading activation has been applied to robotic task planning under uncertainty (S. Bagchi, 2000: 639-650). This approach used to task planning in a form as a decision-theoretic framework where action selection is used by a spreading activation mechanism on a probabilistic network that breaks the domain knowledge. S. Bagchi (2000: 639-650) also showed the main characteristics of this approach that are important to this work:

a) It utilizes a semantic network that comprises both proposition and action nodes that are interconnected via probabilistic links; i.e. the weight associated with each defines the correlation between the success of an action and its preconditions.

b) Spreading activation for action selection utilizes both forward propagation from the current state as well as backward propagation of the goal utility.

c) Since spreading activation is done over a probabilistic network, action selection therefore leads to decision-theoretic planning: the utility received by an action represents the product of the probabilities of success of the subsequent actions in the path leading to the goal proposition. iv. The trade off between the reliability of an action versus its cost is also explicitly addressed by incorporating the cost (expressed in terms of any resource of interest) of the action as well as its probability of success.

This research done by using the Spreading Activation Network Model to reduce or maybe eliminate the problems in writing, since the spreading

activation network is a well-studied technique used by cognitive scientists seeking to understand the learning processes that take place to form learning networks. It can be said that the Spreading Activation Network Model can reduce the effects of the writing problems, especially cognitive factors towards the foreign language learners.

1.6 Scope of the study

This study was designed based on the writer's experience as a teacher. Most of his students feel that it is hard to do a writing task. They think that transforming their idea into an English word is difficult, findings the right words is the main problem. That is why; the composing term is hard for them to reach. This study chose the 10th grade students of Don Bosco Senior High School, because he thought that it was necessary to teach the method in the early age of senior high school, because it would be easy to influence and teach a new method. Besides that, at that their ages, they like talking to their friends. They like telling their experiences and transferring ideas to others, in a form of speech.

Spreading activation network model is used as the way to help the students transform their ideas and find the suitable words with their ideas in doing writing task. He taught this model as a new way for the students and also the teacher in solving the problems that have been faced by the students

in doing the writing task. The research's time was done before the teacher began the lesson, so it would not affect it. The research was done not based on the curriculum of the school, so there was no connection between the the lesson from the teacher with the the research.

1.7 Definition of key terms

Several keys were used in this study. They are Writing, Spreading activation network model, T-test, Wilcoxon signed rank test, Mann-Whitney test. The definitions of the key term are described below:

a) **Writing**

Is described as a generative process where the writers discover and formulate their ideas as they attempt to approximate meaning. It consists of four elements in writing process, they are planning, drafting, editing and final version (Harmer: 2004).

b) **Spreading Activation Network Model**

Is a method for searching associative networks, neural networks, or semantic networks. The search process is initiated by labeling a set of source nodes (e.g. concepts in a semantic network) with weights or "activation" and then iteratively propagating or "spreading" that activation out to other nodes linked to the source nodes. (Collins: 1975, 407-428)

c) T-test

Is any statistical hypothesis test in which the test statistic follows a Student's t distribution if the null hypothesis is supported? It is most commonly applied when the test statistic would follow a normal distribution if the value of a scaling term in the test statistic were known. When the scaling term is unknown and is replaced by an estimate based on the data, the test statistic (under certain conditions) follows a Student's t distribution. (O'Mahony: 1986, 487)

d) Mann-Whitney test

Is a non-parametric statistical hypothesis test for assessing whether one of two samples of independent observations tends to have larger values than the other. It is one of the most well-known non-parametric significance tests. (Lehmann: 1975)

1.8 The organization of writing

This thesis is systematically divided into five chapters. In order to make this research easy to follow, the writer organizes it as follows:

Chapter One: Background of The Study. It includes an introductory paragraph, statement of the problem, objective of the study, significant study, underlying theories scope of the study, and the organization of writing.

Chapter Two: Review of the Literatures. It discusses about previous studies. It also discusses about writing problems for foreign language students; cognitive factors and the definitions, and also the Spreading Activation Network Model

Chapter Three: Research Method. It includes data presentation that consists of research design, subject of the research, data source, technique of collecting data and instrument of collecting data. This chapter also includes data analysis and finding presentation.

Chapter Four: Findings and discussion. This chapter will present the students' writing results and analysis of the first meeting; pre test, analysis of the second meeting, and analysis of the third meeting; there is also result of the comparison of students' writing result; the calculation of the mean score from pretest to post-test for both classes.

Chapter Five: Conclusion and Suggestion. It contains conclusion from the writer based on the previous discussion and the writer's finding based on the writer research. There is also suggestion from the writer for the next researcher, students and the teacher.

CHAPTER 2

REVIEW OF LITERATURE

In this chapter the researcher simplifies the problems that have been faced by the foreign language students. The problem is *cognitive factors*. After that, the researcher discusses the spreading activation network model and also mentions the previous studies related with the writing task and the problems for the foreign language students.

2.1 Previous study

Syaifullah (2009) makes a research how to improve the students' ability in writing recount text by using picture series. In this research, he revealed that there were some problems found in the field when giving writing materials to the students, especially the recount text. The first problem was that the students' writing was not comprehensible, because the content of the composition was not relevant to the topic, the ideas were not clearly stated, the ideas and sentences were not well organized. The second problem was that there were many errors in vocabulary, grammar, and spelling. Another problem was the students had low motivation and were not interested in doing the task since the writing activities were not interesting. Usually, the

students were asked to write sentences and paragraphs without being given some clue so that it was difficult for them to express their ideas on a piece of paper.

This research was focus on the students of class VIIIC SMPN 1 Bati-Bati Kabupaten Tanah Laut in the first semester of 2008/2009. The number of the students in this class was 36 students. The students were taken as the subject of the study since they have poor ability in writing recount text. This research focus on the positive effect using picture series as the media to improve the students' competence to understand the generic structures of recount text as well as its language features.

There were two cycles in his research. Each cycle consisted of planning, acting, observing, and reflecting. Both cycles focused on the oral cycle of recount learning process. Each oral cycle needed 3 meetings. One meeting was for building knowledge of the field (BKOF), and modeling of text (MOT). One more meeting was for joint construction of text (JCOT), and another one was for individual construction of text (ICOT). So, the two cycles of the action research need 5 meetings.

After conducting the research, he concluded that the use of picture series can improve the students' writing ability in recount text. The students' mean score is 71.52. It fulfilled the criteria of success which is determined 7.00 or more. In terms of students motivation and activeness, during the

teaching and learning process using picture series the students were actively involved and more motivated to write.

Chairun Nisak's (2007) research discussed how to improve students' writing skill through report text at SMA MUHAMMADIYAH 5 Juwiring". Chairun's research is to know whether or not the students have adequate writing skill in learning English, to know the students participation during English teaching learning process using text report to improve students writing skill, and to describe the achievement of the students writing skill in their test result. In this research, text report is used by Chairun to improve students writing skill in learning English. This research was carried out at Sma Muhammadiyah 5 Juwiring especially in cla ss B that consist of 35 Students. To collect the requierd data, the writer did observation, gave test, and used interview. There were two cycles in this action research. In which each cycle used pretest and posttest. The result of pretest and posttest were use to know the score of the writing skill. The mean score of pretest was 57.71, which belongs to low score. While, the mean score of the students writing skill of the teacher did the action was 80.28 Based on the research findings, it can be concluded that the result of the students' achievement showed that descriptive paragraph using text report in teaching writing could improve the students' achievement better. The students score was getting better in each cycle. It indicated that the teaching learning process was successful. Therefore, it is better for the students to study English carefully through practice and experience, and to be active and creative in learning

English. While the English teacher should teach the students with text report, process considerable knowledge to manage an interesting classroom, and prepare the lessons they are going to teach as well as possible.

These two previous studies show that there are a lot of researches about how to improve the writing skill of the students' through various ways. And as we can see that writing is always and will be a big problem for the foreign students'. This study used the spreading activation network model as an option to encourage them to writing was not hard as they thought before, by connecting the nodes form one word to another words that related with their ideas.

2.2 Writing and the problems in writing for the foreign language students

The nature of academic literacy often confuses and disorients students, "particularly those who bring with them a set of conventions that are at odds with those of the academic world they are entering" (Kutz, Groden & Zamel, 1993, 30).

For the foreign language learners, the result of their writing skill is not always good. This thing happens because academic writing requires conscious effort and practice in composing, developing, and analyzing ideas. Compared to writing in first language, writing in foreign language acquires not only writing strategies, techniques and skills, but also the ability to use

the language, so, the reader will understand what we are going to talk about. The Flower and Hayes (1980, 1981) model focuses on what writers do when they compose. It examines the rhetorical problem in order to know the potential difficulties a writer could experience during the composing process. The "problem-solving activity" is divided into two major components: the rhetorical situation (audience, topic, assignment), and the writer's own goals (involving the reader, the writer's persona, the construction of meaning, and the production of the formal text). By comparing skilled and less-skilled writers, the emphasis here is placed on "students' strategic knowledge and the ability of students to transform information . . . to meet rhetorically constrained purposes" (Grabe & Kaplan, 1996, 116). However, the social dimension is important too. Indeed, writing "should not be viewed solely as an individually-oriented, inner-directed cognitive process, but as much as an acquired response to the discourse conventions . . . within particular communities" (Swales, 1990, 4). Problems in writing foreign language will always be experienced by the foreign language writer, because it's harder for them to use the foreign language than their first language in delivering their message in form of writing. They must be able to deliver their message in the form that the readers will easily understand.

According to Gore (2004, 44), there are several writing strategies, such as:

a) Provide explicitness and structure

   Make writing in a complete form. Each paragraph connected in a smooth an understandable way

b) Make the invisible visible

   As a writer, you have to transform your idea and make the audience feels as it is real

c) Break process down into small steps

   Before you do the writing, you have to learn and master how to compose the topic that you have chosen

d) Reduce uncertainty and stress

   Choose a simple and understandable topic. It is okay to choose a complicated topic as long as you are able to deliberate it and make it understandable.

   Foreign language learners might also have to deal with instructors, in this case their teacher, who may or may not help them in eliminating their problems in writing using foreign language when evaluating their work. Students want to write close to error-free texts and they enter language courses with the expectations of becoming more skilled writers in the foreign language. As a result, any appropriate instructions must take into consideration the influence from various educational, social, and cultural experiences that students have in their native language. In addition to

instructional and cultural factors, foreign language writers have varying commands of the target language, which affect the way structural errors are treated from both social and cognitive points of view.

Most of the researches on foreign language writing have been closely dependent on first language research. Although foreign language writing is strategically, rhetorically, and linguistically different in many ways from first language writing (Silva, 1993, 35), first language models have had a significant influence on foreign language writing instruction and the development of a theory of foreign language writing.

According to Myles (2002), there are two factors that always become the main problems for the second language writer such as the social and cognitive factors.

The social factors related with the influences from the outside of the foreign language learners, meanwhile, the cognitive factors related with knowledge of the foreign language learners.

a) Social factors

Learners' negative attitudes may be strengthened by lack of success or by failure (McGroarty, 1996, p. 19). Exploration of social factors gives us some idea of why learners differ in rate of foreign language learning, in proficiency type (for instance, conversational ability versus writing

ability), and in ultimate proficiency (Ellis, 1994, p. 22). Foreign students will have positive attitudes, a good motivation when they experience a success before, but they will act negative, unmotivated if they experience failure before. A positive attitude comes along with a motivation. Although the high school students in Don Bosco may have negative attitudes toward writing for academic purposes, many of them are financially and professionally committed to graduate, and as a result, have strong reasons for learning and improving their skills.

Foreign language, in this part English, is a must today in a society, which is why individuals are motivated to learn and understand it, so they integrate into the society. Comes along with the language, the culture from the language itself may also inspire and affect them. An instrumental tool like motivation influences them; it makes the learners interested in learning the language for a certain purpose, for example here the students of Don Bosco. Since English becomes one of their lessons in school, they become motivated in order to graduate.

Motivations, a positive attitude and also a particular goal make them want to perform better than others, that is what makes them different that the others who unmotivated.

For example, when the researcher was a teacher, he told the students to answer or fill out a personal information form to determine their needs

and interests when they following my class. The questions are, "Do you enjoy writing in English?" and "What are your strengths and weaknesses in writing?" Most students will answer that they hate writing in English, and only take the course for educational and/or career purposes. In fact, it seems that many of the students would prefer to practice conversation. Students may enjoy writing e-mail, messages to friends around the world, but problems occur, such as difficulties getting started, finding the right words, and developing topics, in a large number. However, if students show an overall interest in the target language (integrative motivation), perceive parental and social support, and have a desire to achieve their professional goals (instrumental motivation), they can become more proficient in their ability to write in English, despite the initial lack of self-motivation.

Gardner's (1985) socio-educational model is designed to account for the role of social factors in language acquisition. There are four aspects of foreign language learning: the social and cultural milieu (which determines beliefs about language and culture), individual learner differences (related to motivation and language aptitude), the setting (formal and/or informal learning contexts), and learning outcomes. Motivation that already planted inside the learners involves a desire to learn an foreign language because individuals need to learn the target language so they can integrate into the

society. Another thing, despite the interest, the people or the culture from the foreign language may also inspire and motivate them to learn the language. Motivation also plays along here, it becomes an instrumental tool for them, the learners in strengthen the desire of the learners to master and understand the foreign language. Based on the gardner's theory, when foreign language learners are far from the a group who interested in learning the language, learners will become unmotivated and show a negative attitude toward the language, if the learners are in the group of the target language speakers, the learners will show a positive attitude and motivate them to learn the language. The motivational factors "probably do not make much difference on their own, but they can create a more positive context in which language learning is likely to flourish" (Bialystok & Hakuta, 1994, p. 140). Motivation is an effective factor in learning the foreign language.

A common complaint among the students when I was a teacher is the difficulty in meeting native speakers or a group who is active in using English. Students are often disappointed, they do not experience the group or have as much interaction with native speakers as they have expected. In addition, they often associate with other students using Indonesia language. Sooner or later, they become unmotivated and a negative attitude toward the foreign language, English.

In short, learners may continue to make errors in their writing for the following social reasons:

1) Negative attitudes toward the target language

2) Continued lack of progress in the second language

3) A wide social and psychological distance between them and the target culture, and,

4) A lack of integrative and instrumental motivation for learning.

b) Cognitive factors

Writing is complex. By practicing from time to time and learn the mistakes that we have made before, understanding the foreign language is inevitable. With practice, there is continual restructuring as learners shift these internal representations in order to achieve increasing degrees of mastery in second language (McLaughlin, 1988, 67). Based on Myles' (2002) words in his journal, according to cognitive theory, communicating orally or in writing is an active process of skill development and gradual elimination of errors as the learner internalizes the language. Again, learning from mistakes that we have made is important. The surroundings of the foreign language learners also play a big a role. Because if the surroundings do not give support or influence in a good way, mastering the language, in this case, foreign language will not happen.

Anderson's (1985) model of language production, which applies speaking and also writing, can be divided into three stages: construction, transformation, execution. Construction means what the writer is going to write. He has to search what is the main idea of the writing the writer is going to make. Transformation, by using a group of words that reflect the main idea of the writing, the writer can transform the idea into a message that the writer going to deliver. Execution means the act or the process of the writer in producing the writing. These three stages are hard for foreign language students. They find it difficult in brainstorming the idea, find the right words of the target language for their ideas, and turn all of them into a writing form. But, usually, the brainstorming and find the right words of the target language are the hardest part for them.

Controlling the situation that happens around the students is important. In order to make a good writing, emotion of the writer, in this case the foreign language learner must be in a good condition or having a good mood. Such as, writing in a short time because of a deadline not only can make the writers give the best of themselves but also the worst. Emotion is playing a big role in the process of writing. Schumann (1998, 247) states that we're very often use feelings as information: "When faced with a situation about which we have to make a judgment we often ask ourselves how we feel about it . . . we may also employ feelings when time

constraints and competing tasks limit our cognitive capacities". This outcome may affect the way foreign language learners perform when they are under stress. The task's result can be good or bad, because emotion not only can bring the best of the person but also the worst.

Language transfer is another important cognitive factors related to writing error. Transfer is defined as the influence resulting from similarities and differences between the target language and any other language that has been previously acquired (Odlin, 1989, 45). The study of transfer involves the study of errors (negative transfer), facilitation (positive transfer), avoidance of target language forms, and their over-use (Ellis, 1994: 51). Behaviorist accounts claim that transfer is the cause of errors, whereas from a cognitive perspective, transfer is seen as a resource that the learner actively draws upon in interlanguage development (Selinker, 1972: 22). According to McLaughlin (1988: 89), transfer errors can occur because:

1) Learners lack the necessary information in the second language or

2) The attentional capacity to activate the appropriate second-language routine.

Because learners are less familiar and less confident with structural elements of a new language, rhetorical and cultural conventions and even

new uses of writing, writing in a second language can have errors and be less effective than writing in first language (Kern, 2000: 13).

It is easy to write or talk in the first language, because the first language is the first language that we have heard and learned when we open our eyes for the first time. It means that first language will not be a problem for us. Foreign language is another case; errors will always happen, because in expressing something using the foreign language will always be a difficult case. The cognitive factors can be a tool to help in knowing the reason why errors in writing happened and done by the foreign language learners.

For instance, the writing problems experienced by Spanish speakers living in the United States may be due to a multiplicity of factors, including the effects of transfer and interference from the Spanish language, and cultural norms (Plata, 1995: 76). Plata's statement means that Spanish-speaking writers must undergo the task of cognitively exchanging the style of the Spanish language for that of English. For this transformation to happen, some students find that creating another personal, such as replacing their birth name with an English one; can help them to become more immersed in the target language and culture. Kern (2000: 13) said that learners are less familiar and less confident with structural elements of a new language, rhetorical and cultural conventions

and even new uses of writing, writing in a second language can have errors and be less effective than writing in first language

If I conclude, the social factors are:

1) Negative attitudes toward the target language

2) Continued lack of progress in the foreign language

3) A wide social and psychological distance between them and the target culture, and,

4) A lack of integrative and instrumental motivation for learning.

So, the summary of the cognitive factors are:

1) Connect with academic writing (academic vocabulary and discourse style)

2) Organizing text

3) Emotion influence cognition

4) Transfer errors

From the conclusion we can see that the main problems on social factors related with motivation. For cognitive factors related with the ability in mastering the foreign language, which is English and how to organize a good text. The motivational factors "probably do not make much difference on their own, but they can create a more positive context in which language learning is likely to flourish" (Bialystok & Hakuta, 1994: 140). learners' negative attitudes may be strengthened by lack of success or by failure

(McGroarty, 1996: 19). Based on those two experts, it shows that in order to understand the target language, learners must have a positive attitude toward it, if the learners already have a negative attitude toward target language, it will be hard for them to understand and master the target language. By using the spreading activation network model, the researcher assumes that the foreign language learners can neutralize those problems. Below, he is going to discuss what is spreading activation network model, and how can this model neutralize the problems, social and cognitive factors

2.3 Spreading Activation Network Model

The spreading activation model of Collins and Loftus (1975), the concepts (or brands in this case) are represented in memory as nodes, and relations between brands are represented as associated pathways between the nodes. Collin and Loftus said that this theory says that long-term memory contains interconnected units of information. These connections produce associations between the units (you think of one, you automatically think of the other) or pathways that control how you retrieve information (you must travel along the connecting lines). They also said that the connections were based on logic (set-subset relationships), the connections are based on personal experience and are not necessarily logical.

These are additional features of the spreading activation network

model, such as:

1) Concepts and properties are treated equally in the sense that each can be accessed directly. In Collins and Quillian, properties are contained within concept categories: To think of a property, like "can fly", you first have to think of a category, like "bird".

2) Not only are properties linked to concepts, but also to other properties. For example, "can fly" could be linked directly to "can sing". In Collins & Quillian, each of these is linked to a category.

3) Links between units of information vary in length. The longer the line between two units, the weaker is the degree of association between them.

It means that concepts and properties have their own links, even they can link to each other, but if the link spreads farther, the connection for the first word to the last word is weaker than the first word to the second, or the third.

Another example, coke could be one such node in a consumer's memory while different attributes of coke (carbonated, cola, distinctive taste, etc.,) could be connected to the node 'Coke' by associated pathways. Another brand of soft drinks (e.g., Pepsi) may share some of the attributes of coke (e.g., carbonated) while it may also have some unique attributes of its own. The attribute 'carbonated' is thus linked both to coke and Pepsi. The more attributes two brands have in common, the more links there are between the two nodes, and the more related in memory the two brands will generally be.

But if the spread of the links is getting farther, degree of the association will be weaker.

In category verification of Collins & Quillian (1969: 71), they made explanation based on memory retrieval. Since concepts are assumed to be associated within a network of associations in this model, activation may spread not only to directly related concepts but also from those concepts to concepts further in the memory network. This assumption has been known as "multiple-step" assumption.

Unfortunately de Groot (1983: 35) suggested that activation spreads only a single step within the memory network (i.e., "one-step" activation). She constructed a set of triads in which there were direct relation between the first and the second word (e.g., bull-cow) and the second and the third word (e.g., cow-milk) but no direct relation between the first and third word (bull-milk). de Groot argued that if subjects were able to make a lexical decision to milk more quickly in the mediated prime condition (bull-milk) than in the neutral prime condition (blank-milk), then this would suggest that activation had spread across two associative pathways from bull to cow to milk and this would provide evidence for multiple-step spreading activation. Based on her findings, de Groot suggested that activation spreads to directly related concepts but does not spread any further within the memory network.

Balota and Lorch (1986: 18), doubt the validity of the conclusions

reached by de Groot. They say that the theories of spreading activation predict less priming facilitation in a mediated priming condition (bull-milk) than in a related priming condition (cow-milk). This prediction is based on the assumption that the amount of activation available at a node depends on its distance from the source of activation.

Balota and Lorch (1986: 32) also investigated whether activation automatically spreads beyond directly associated concepts within the memory network. In a series of lexical decision and pronunciation experiments they constructed prime-target pairs; there was a relation between the prime (e.g., lion) and the target (e.g., stripes) only through a mediating concept (e.g., tiger). The lexical decision results they obtained yielded facilitation of directly related priming conditions (e.g., lion-tiger and tiger-stripes). However, the mediated condition (e.g., lion-stripes) did not facilitate performance compared to either a neutral prime or an unrelated prime condition. In contrast, the pronunciation results yielded facilitation of both directly related and mediated priming conditions. Thus, their results support the notion that activation spreads beyond directly related concepts in semantic memory. As for the results of the lexical decision task, they suggested that the task had masked the appearance of a mediated priming effect.

Based on Groot studies and also Balota and Lorch studies, we can see that the multi-step assumption that was made by Collins & Quillian (1969:

71), could be happen or not. So, in order to know whether a multi-step assumption could be happen or not in a word, we have to investigate are they semantically related or not, the relation of the prime word with target word.

Collins and Loftus (1975: 34)also explain the advantages and the disadvantages of the spreading activation network model. Advantages of the model are that it can explain the familiarity effect, the typicality effect, and direct concept-property associations. Its biggest advantage is that it explains "priming": you are more likely to retrieve information from memory if related information (the "prime") has been presented a short time before. Ratcliff & McKoon (1981: 56) also said that spreading activation model also best account for an unconscious process called associative priming. Meanwhile, Anderson (1995: 31) said that associative priming refers to the facilitation in access to information when associated items are presented. He also said that spreading activation model accounts for this phenomenon by assuming that words which are semantically associated with each other are represented in the form of a network and activation spreads through this network from presented words to their associated words in memory. This model connects the word with other words that come from our minds in instance, with these words will form a network.

It means that we will easily retrieve the information word from our memory if that word has a close relation with the previous word, in this case

the prime word, in other word we can call it associative priming. For example, we will easily connect the word of types of animal, such as insects, mammals, bird with the word animal. Because, the words that come from types of animal have a close relation with the word animal, and it's already been there, in our memory.

The disadvantage is that you can't predict reaction times in a verification task until you have mapped out the individual's network of associations. The theory explains a lot but predicts very little. Every individual has their own reaction times. This theory can't predict how long a person will react in doing this kind of task.

Anderson (1983a: 97), McNamara & Diwadkar (1996: 24) proved that Spreading activation is a model with a high degree of explanatory power in cognitive psychology. This model captures both the way knowledge is represented and also the way it is processed. Knowledge is represented in terms of nodes and associative pathways between the nodes. Concepts are represented in memory as nodes, and relations between the concepts as associative pathways between the nodes. When part of the memory network is activated, activation spreads along the associative pathways to related areas in memory. Balota & Lorch (1986: 35), and Anderson (1995: 12) said that speed and probability of accessing a memory is determined by its level of activation, which in turn is determined by how frequently and how recently
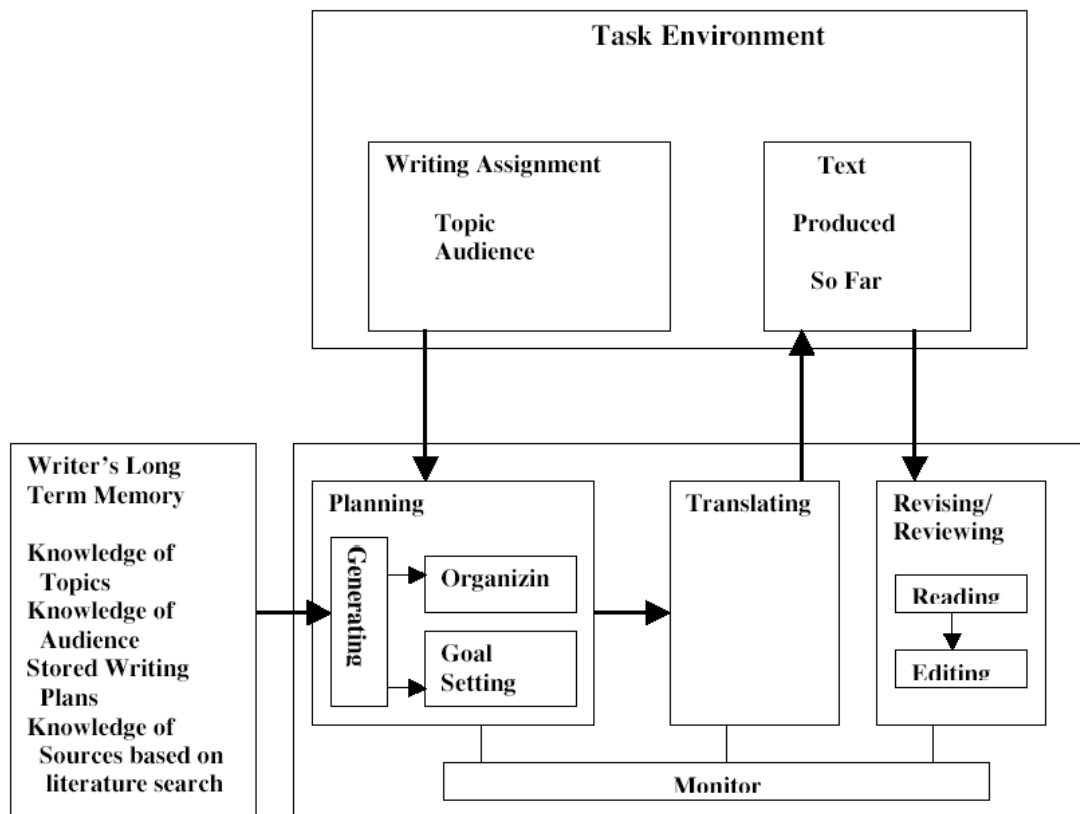
we have used the memory. When thinking about the target words of the prime word, we use our knowledge and also our memory. Knowledge is for knowing the relation the prime word and the target words that we found in our memory. How fast we find the words depends on how often we use our memory and knowledge.

Based on the explanation about the problems for the second language writers, the cognitive factors and the social factors, the Spreading Activation Network Model can be the solution for the cognitive factors. By understanding how the Spreading Activation Network Model works, the second language learners can gain the foreign language words, connect the nodes from the brand to attributes in order to strengthen it and understand the words, while, the dictionary still plays a role. By connecting the nodes with the right words, not only extend their vocabularies knowledge but also can enlarge their creativity in making idea by using the nodes that they've created before. Hopefully, it can also help them to make a good writing result, from the first paragraph until the last paragraph. For the social factors, by knowing how to use the model, it will make the students believe in themselves that they can make a good writing result, and also motivate them to make a better writing result than before.

There are many methods that discuss about how to solve the writing problems that were proposed by some experts. Some of them were the flower

and hayes model (1980-1981), Gardner's Social-Educational model (1985), Anderson's model of language production (1985) and Spreading Activation Network model (1975). Those models can be observed by the following figures.
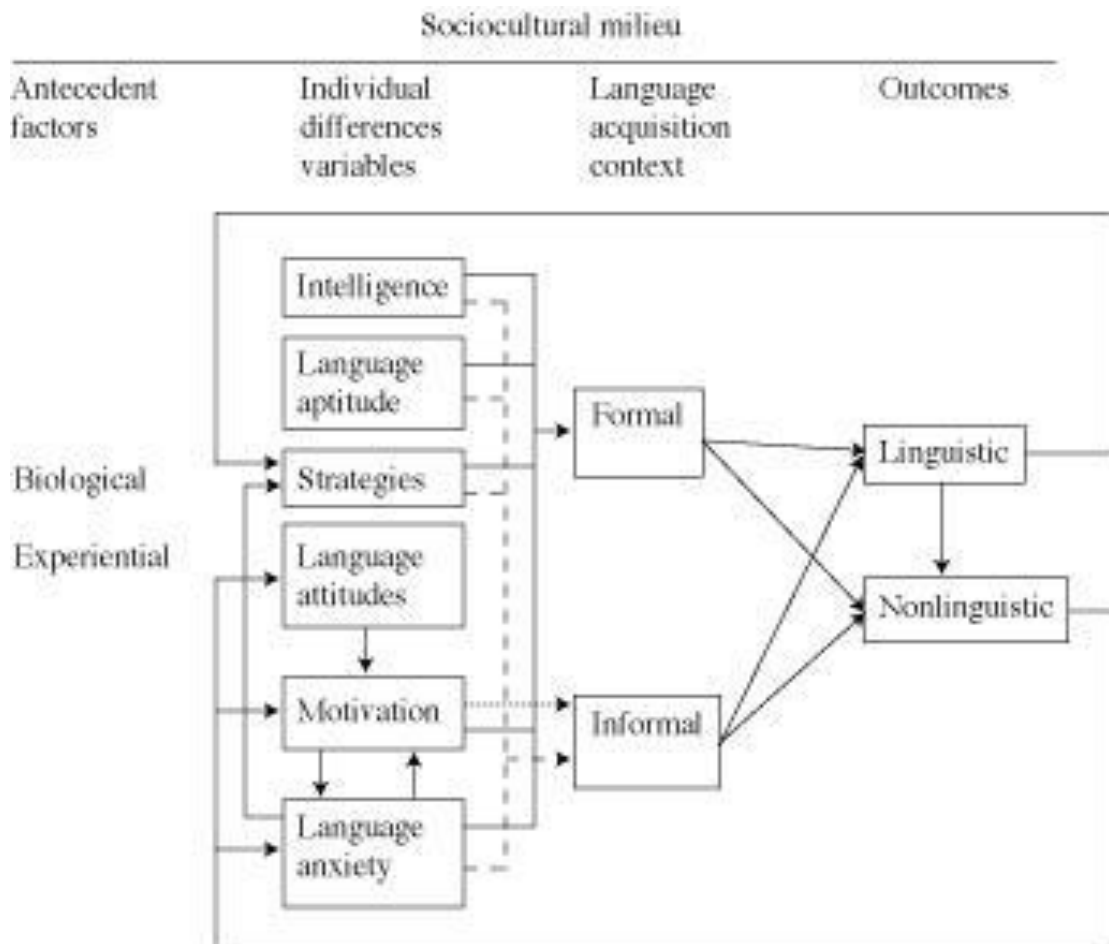
Figure 1: The Flower & Hayes Model (1980, 1981)

Task Environment		
Writing Assignment **Topic** **Audience**		**Text** **Produced** **So Far**

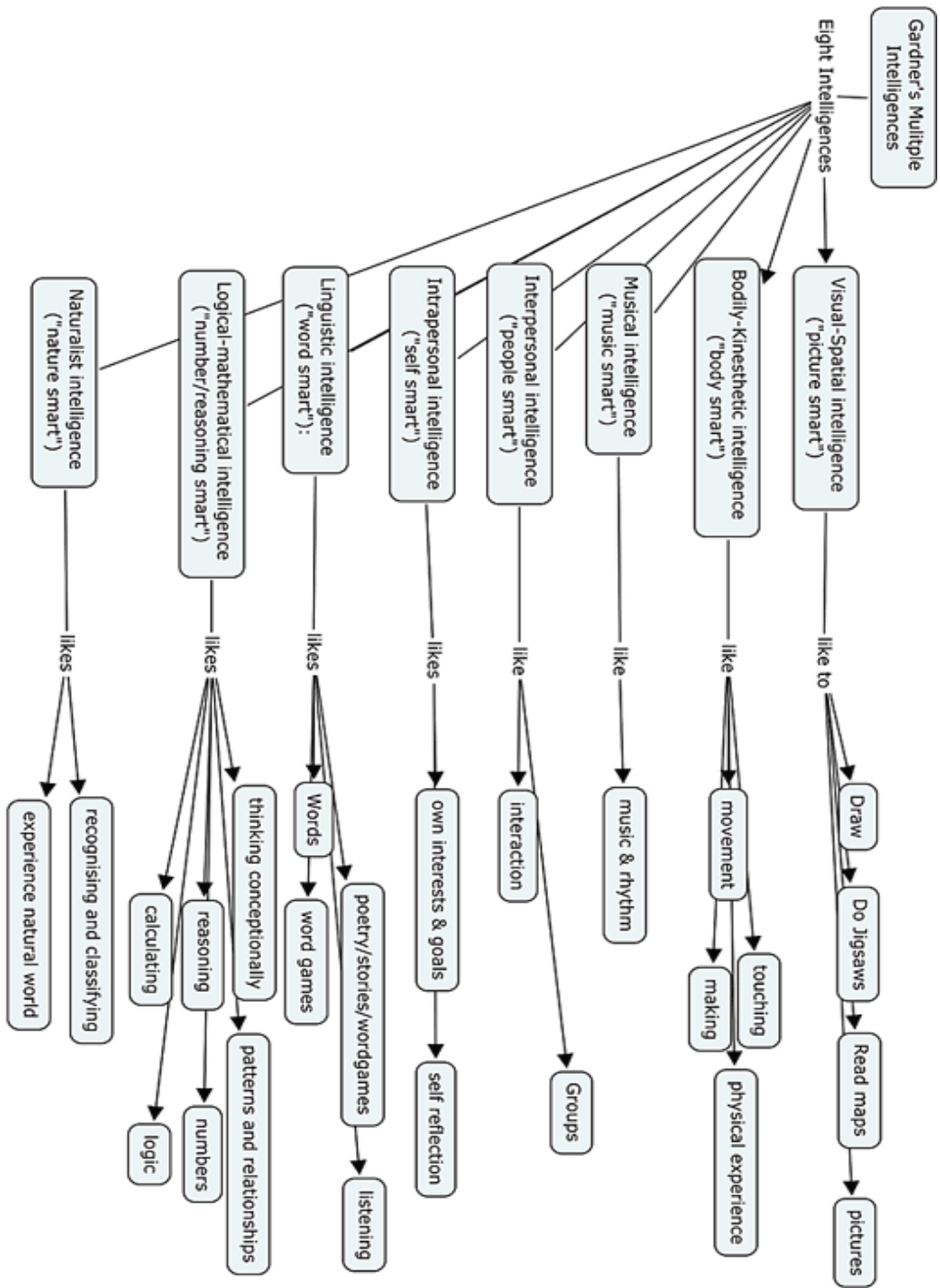| Writer's Long Term Memory Knowledge of Topics Knowledge of Audience Stored Writing Plans Knowledge of Sources based on literature search	Planning Generating → Organizin Goal Setting	Translating	Revising/ Reviewing Reading → Editing
		Monitor	

The Flower and Hayes (1980, 1981) model focuses on the action the writer takes when they compose. It observes the problem or difficulties a writer could experience when they compose. It was divided into two components: the rhetorical situation (audience, topic, assignment), and the

writer's own goals (involving the reader, the writer's persona, the construction of meaning, and the production of the formal text). A good writer and a less-skilled writer would have different strategies when they transform the information. However, the social dimension is important too. Indeed, writing "should not be viewed solely as an individually-oriented, inner-directed cognitive process, but as much as an acquired response to the discourse conventions . . . within particular communities" (Swales, 1990, p. 4)

Figure 2: Gardner's Social-Educational Model (1985)

Gardner's Mulitple Intelligences

Eight Intelligences

- Naturalist intelligence ("nature smart")
- Logical-mathematical intelligence ("number/reasoning smart")
- Linguistic intelligence ("word smart")
- Intrapersonal intelligence ("self smart")
- Interpersonal intelligence ("people smart")
- Musical intelligence ("music smart")
- Bodily-Kinesthetic intelligence ("body smart")
- Visual-Spatial intelligence ("picture smart")

Naturalist intelligence — likes → experience natural world / recognising and classifying

Logical-mathematical intelligence — likes → calculating, reasoning, thinking conceptionally, patterns and relationships → logic, numbers

Linguistic intelligence — likes → Words, word games, poetry/stories/wordgames → listening

Intrapersonal intelligence — likes → own interests & goals → self reflection

Interpersonal intelligence — like → interaction → Groups

Musical intelligence — like → music & rhythm

Bodily-Kinesthetic intelligence — like → movement, making, touching → physical experience

Visual-Spatial intelligence — like to → Draw, Do Jigsaws, Read maps → pictures

Cont…

The social or cultural milieu refers to the environment which the writer is placed; it also involves the writer beliefs on other cultures and languages. This situation has an impact in learning the foreign language.

Example the monocultural setting of Britain, where many believe it is not necessary to learn another language and that minority groups should assimilate and become proficient in the dominant language of the country. The same can be said of many other predominantly monocultural communities throughout the world.

Figure 3: Anderson's Model of Language Production (1985)

Anderson (1985) indicates that language production can be divided into three stages. They are construction (select communication" goals and identities appropriate meanings), transformation (language rules are applied to transform intended meanings) and execution (the message is expressed in audible or observable form). These three stages can be recursive after initial communication goal is established.

Figure 4: Spreading Activation Network Model (1975)
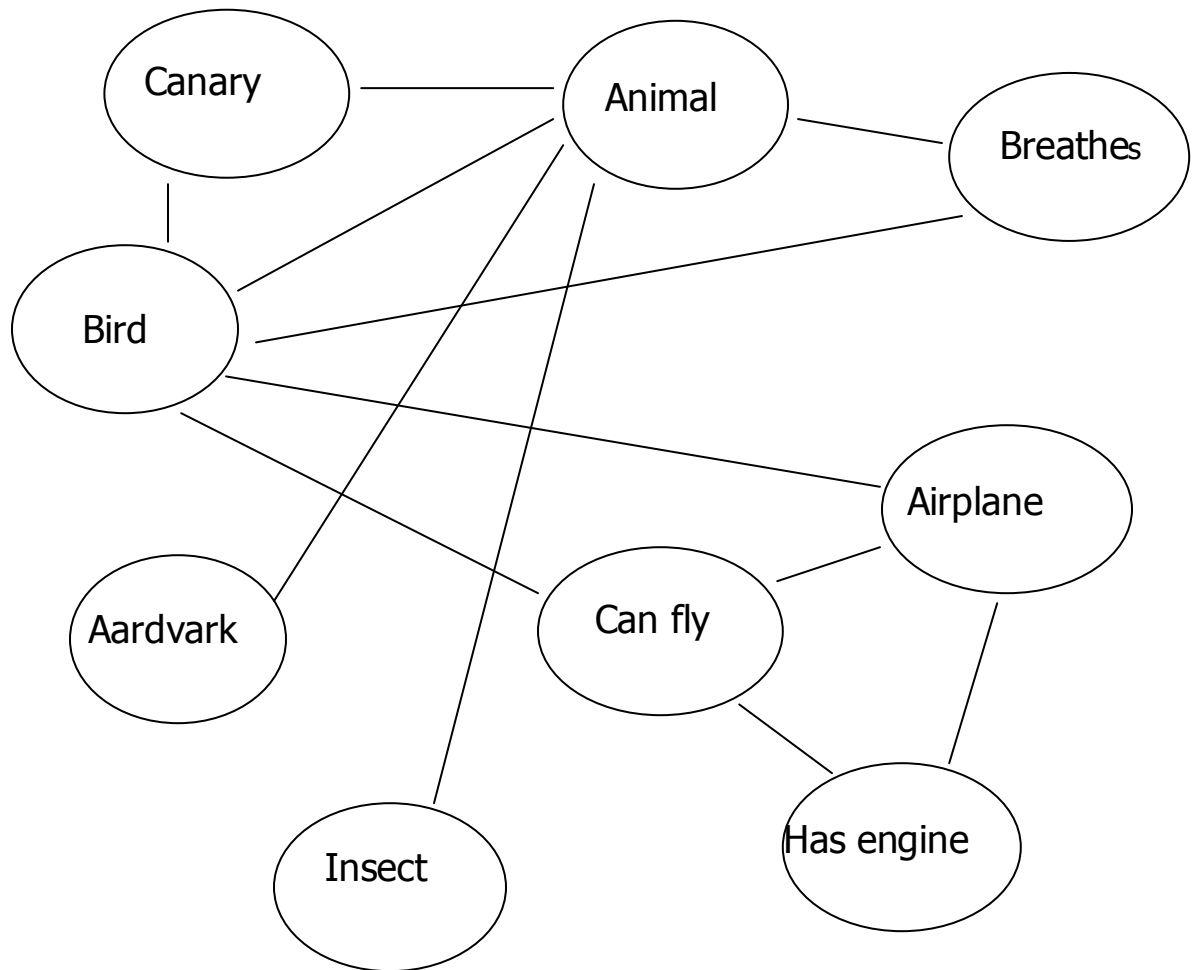
Animal node is divided into several nodes; they are insect, canary, bird, aardvark, and canary. Animal also breathes, that's why there is node of breath. Canary and bird is related, because canary is one of kinds of bird, that's why node canary and bird is connected. Bird also breathes same like animal. Airplane model is made based on bird body, which is why they are connected. Airplane can fly, so can bird, their nodes are connected. In order to fly, an airplane has to have an engine, their nodes are connected.

In this research, Spreading Activation Network model was choosen as the method to solve the problem faced by the students in class 10th of Senior High School, Don Bosco. This model was choosen because it can gain students' cognitive skills. The students who can relate brand to atrributes faster have a better cognitive skills than those who relate the brand to atrributes slower. Hence, this model is the most appropriate model to be applied in teaching writing because it is more fun and the simplest model than the others.

CHAPTER 3
RESEARCH METHOD

For this chapter the researcher tells about the research design, which is about the way he uses in doing the research and what kind of research that he uses. After that he mentions about the object of the research in sample and population. Instruments section is about the instruments that he uses in the research. The ways he collects the data and analyzes it are in the data collection and data analysis

3.1 Research design

According to Best (1981: 24-25) studies are divided into historical research, descriptive research and also experimental research. Landman (1988: 82) summarizes experimental research when he states that it is research designed to study cause and consequence. Experiments are conducted to be able to predict phenomenon. Typically, an experiment is constructed to be able to explain some kind of causation. Experimental research is important to society - it helps us to improve our everyday lives. There are some typical designs and features in experimental design according to http://experimental-research.html they are:

Typical designs and features in experimental design

1) Pretest-Posttest Design

   Check whether the groups are different before the manipulation starts and the effect of the manipulation. Pretests sometimes influence the effect.

2) Control Group

   Control groups are designed to measure research bias and measurement effects, such as the Hawthorne Effect or the Placebo Effect. A control group is a group not receiving the same manipulation as the experimental group.

   Experiments frequently have 2 conditions, but rarely more than 3 conditions at the same time.

3) Randomized Controlled Trials

   Randomized Sampling, comparison between an Experimental Group and a Control Group and strict control/randomization of all other variables

4) Solomon Four-Group Design

   Two control groups and two experimental groups. Half the groups have a pretest and half do not have a pretest. This is to test both the effect itself and the effect of the pretest.

5) Between Subjects Design

Grouping Participants to Different Conditions

6) Within Subject Design

Participants Take Part in the Different Conditions – See also: Repeated Measures Design

7) Counterbalanced Measures Design

Testing the effect of the order of treatments when no control group is available/ethical

8) Matched Subjects Design

Matching Participants to Create Similar Experimental- and Control-Groups

9) Double-Blind Experiment

Neither the researcher, nor the participants, knows which is the control group. The results can be affected if the researcher or participants know this.

10) Bayesian Probability

Using bayesian probability to "interact" with participants is a more "advanced" experimental design. It can be used for settings were there are many variables which are hard to isolate. The researcher starts with a set of initial beliefs, and tries to adjust them to how participants have responded.

Meanwhile, according to Landman (1988: 89), the basic structure of this type of research is elementary: two situations (cause and consequence) are assessed in order to make a comparison. Following this, attempts should be made to treat the one situation (cause) from the outside (external variable) to affect change, and then to reevaluate the two situations. The perceivable changes that occurred can then be presumed as caused by external variables.

a) Control group

Because: control is a fundamental characteristic of this type of research, control groups are a prerequisite. Control groups are selected from a group of selected persons whose experience corresponds with that of the experimental group. The only difference is that they do not receive the same treatment (Landman 1988: 58).

b) Variable

In order to do experimental Research, it is necessary to distinguish clearly between the terms dependent and independent variables. In experimental research it is a prerequisite that the researcher should be able to manipulate the variable and then to assess what the influence of the manipulation on the variable was.

A variable is any characteristic (of man or his environment) that can take on different values. Objects are usually not considered as variables - but their characteristics are. As example the following can be considered: a

transparency is not a variable (it is an object). The characteristics of the transparency are variables, for example the colour, design etc. In other words, a transparency as an object can take on different values.

1) **Independent variable**

According to Landman (1988: 98) the independent variable is the circumstances or characteristics which the researcher can manipulate in his effort to determine what their connection with the observed phenomenon is. This means that the researcher has direct control over the variable. As example of an independent variable, is a study method.

2) **Dependent variable**

The dependent variable, on the other hand, is the circumstances or characteristics that change, disappear or appear when the researcher implements the independent variable. For example, learning content that should be mastered (student performance) is the dependent variable, while the manipulation of study methods by means of different teaching methods, is the independent variable.

3) **Internal and external validity**

The importance of control in conducting experimental research has been pointed out earlier. A further pre-requisite for this type of research is validity.

Validity is a term used in research methodology that indicates the extent to which a test complies with the aim it was designed for. (You should ensure that you understand the terminology used.)

- Internal validity

Internal validity means that the perceived difference in the independent variable (characteristics that change) is a direct result of the manipulation of the obtained research results, and therefore possible to conclude. In experimental design, emphasis is placed on the way in which reference between independent and dependent variables should not be confused by the presence of uncontrolled variables (Landman 1988: 97).

- External validity

External validity means that the results of the experimental research should be applied to a similar situation outside the experimental design. The results of the experimental research can then be confirmed in similar situations. (The findings are then considered general.)

Some types in the site above were combined in this research. They were pretest-posttest design, control groups, randomize controlled trials, and matched subject design. Then, all of the basic structures proposed by

Landman (1988: 89) were also used in this research. The combination of the types and basic structures were applied to get the best result on the research.

Barry&Herman Gribbons' journal (1997), experimental research was divided into two general categories:

a) True experimental design

This category of design includes more than one purposively created group, common measured outcome(s), and random assignment. Note that individual background variables such as sex and ethnicity do not satisfy this requirement since they cannot be purposively manipulated in this way.

b) Quasi-experimental design

This category of design is most frequently used when it is not feasible for the researcher to use random assignment.

Quasi-experimental design divides into two categories. They are:

- **Nonequivalent group, posttest only (Quasi-experimental)**.

    The nonequivalent, posttest only design consists of administering an outcome measure to two groups or to a program/treatment group and a comparison. For example, one group of students might receive reading instruction using a whole language program while the other receives a phonetics-based program. After twelve weeks, a reading comprehension test can be administered to see which program was more effective.

A major problem with this design is that the two groups might not be necessarily the same before any instruction takes place and may differ in important ways that influence what reading progress they are able to make. For instance, if it is found that the students in the phonetics groups perform better, there is no way of determining if they are better prepared or better readers even before the program and/or whether other factors are influential to their growth.

- **Nonequivalent group, pretest-posttest**.

    The nonequivalent group, pretest-posttest design partially eliminates a major limitation of the nonequivalent group, posttest only design. At the start of the study, the researcher empirically assesses the differences in the two groups. Therefore, if the researcher finds that one group performs better than the other on the posttest, s/he can rule out initial differences (if the groups were in fact similar on the pretest) and normal development (e.g. resulting from typical home literacy practices or other instruction) as explanations for the differences.

    Some problems still might result from students in the comparison group being incidentally exposed to the treatment condition, being more motivated than students in the other group, having more motivated or involved parents, etc. Additional problems may result from discovering that the two groups do differ on the pretest measure. If groups differ at

the onset of the study, any differences that occur in test scores at the conclusion are difficult to interpret.

The researcher concludes that this is a quasi-experimental research, with pretest and post-test design, also with a random sampling group. The researcher chose two different classes randomly, but at the same level. He started the class by giving them a writing task; the students were freely to choose the topic they are going to use. This is the pre-test. After that the researcher checked the result. After he has done it, he returned their work back together with the results. For class A, as the independent variable, he taught the spreading activation network model and how to use it in doing the writing task, before that he explained what mistakes they have done in their writing task. Meanwhile, for class B, as the dependent variable, he only explained what mistakes they have done in it. When they have finished, he gave the same writing task, he told them to write their previous writing task, for class A, by using the spreading activation network, for class B, by learning their mistakes which he have taught them before.

3.2 Sample and Population

The population of this research was the students of the 10th class of Don Bosco Senior High School. The population sample was from two different classes. One class made the writing task by using spreading

activation network model, the other one didn't. The scores are from the pre-test and post test of the two classes.

The sample is the scores from the pre-test and post-test of those two classes. From these scores, he compares to find which one is better, the one with the spreading activation network model, or the one which didn't use the spreading activation network model.

3.3 Role of the Researcher

This was Quasi Experimental Research, the nonequivalent group, pretest-posttest design, in which it studies cause and consequence. The classroom teacher acted as the observer. For experimental class, class A, the researcher gave the writing task for the first and the third meeting, for the second meeting, he explained the mistakes they did in the first meeting and taught the Spreading Activation Network Model, for controlled class, class B, he only explained the mistakes.

3.4 Instruments

The instrument used here was writing test. By delivering the task, the researcher finds what the result is before using the Spreading Activation Network Model, and after using the Spreading Activation Network Model.

From those two results, the researcher compared whether the Spreading Activation Network Model gave a better result or not

3.5 Data Collection

There were 3 meetings in this research. There was 15 minutes for each meeting. In the first meeting, he gave instruction to the two classes of the research's population to write about anything that they want to write as a pre-test. He second meeting, for class A, he explained about the mistakes they did at the pretest. He also taught about the spreading activation network model and how to use it. Meanwhile for class B, he did not teach the spreading activation network model, he only explained about the mistakes they did in the pretest. At the last meeting, the post-test, for class A, they did the post-test using the Spreading Activation Network Model, for class B, they did the post-test based on what they know. After they have finished doing it, he gave the scores, and made comparison from these two classes' score to find which one was better, the one using the spreading activation network model or not

3.6 Data analysis

For the students in Don Bosco Senior High School, Semarang, most of the students feels that writing is one of the problems. They think it is hard to create the idea of the title, and also deliberate it into the form of writing. It

happens because they think it is hard to find the correct theme that connects perfectly with the title. To complete this article, the researcher compared two classes, one class used the spreading activation network model, and the other one did not. After that the researcher teaches about the spreading activation network for the class which used it in their writing task.

In the end, the researcher received two results of their writing test. With these two results, from the class who used the spreading activation network model and the class who did not use it, the researcher compared the scores, to find out which one has the better mean score. For this part, the researcher used Scoring rubrics by Brown and t-Test. Scoring rubric is used to scoring the students' writing result of the pre-test and post test for each class, meanwhile T-test is to calculate the mean score of each class, which class is better. Based on Mustafid's book (2003), "statistika elementer" page 83, T-test formula is:

$$t0 = \frac{\overline{X_1} - \overline{X_2}}{\sqrt{\dfrac{S_1^2}{n_1} + \dfrac{S_2^2}{n_2}}}$$

Before we use the T-test, we have to find the v first. V formula is:

$$V = \frac{\left[\dfrac{S_1^2}{n_1} \quad \dfrac{S_2^2}{n_2}\right]^2}{\dfrac{\left[\frac{S_1^2}{n_1}\right]^2}{n_1+1} + \dfrac{\left[\frac{S_2^2}{n_2}\right]^2}{n_2+1}}$$

t0 is used to find which class who has the best mean point, before we do that

we must find the v.

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