

THE POWER OF CONCEPT MAPPING TO IMPROVE READING COMPREHENSION

Candra Jaya

Islamic Institute of Ma'arif Metro (STAI Ma'arif Metro), Lampung, Indonesia

candrajaya_72@yahoo.co.id.

Abstract

The objective of the study was to investigate the power of concept mapping in improving the students' reading comprehension at Sekolah Tinggi Agama Islam Ma'arif (STAI Ma'arif) Metro – Lampung. The study was conducted by using classroom action research within two Cycles. Four steps of each cycle were planning, implementing, observing, and reflecting. Five instruments that are used to collect the data consist of observation sheet, field notes, interview, test, and questionnaire. The findings of the students' learning atmosphere from observation and fieldnotes described enjoyable of students' learning interaction. Interview revealed the students felt comfortable and enjoyed for learning reading. The finding of the students' reading achievement showed that all students, out of 25 students, got the scores above 60. Questionnaire indicated 47% of the students' responses was “*strongly agree*” and 53% of their responses was “*agree*” for the benefit of concept mapping implementation.

Key words: concept mapping, reading comprehension

1. INTRODUCTION

The aim of teaching reading in university is to develop the students' reading proficiency in English (Renandya 2004 in [1]. Street in [3] states reading covers the process of identifying words from the visible letters and identifying words that have different meanings in different sentences Moreover, [2] propose reading is an activity which involves the reader to search for general and specific information in the text.

Study conducted by Kweldju in [1] has found two reasons of most students had low motivation to read English, namely; (1) their limited background knowledge and (2) their incapability of understanding the content of the text and complicated organizational structure of the text.

English department students at Sekolah Tinggi Agama Islam Ma'arif (STAI Ma'arif) Metro – Lampung encountered three problems in following reading class: (1) the students have little interest in reading text, (2) the students cannot determine the topic, main idea, and supporting details from the reading text, (3) the students still find it hard to grasp the outline of the information from the reading text.

Considering the students' problem in learning reading, the writer was interested in doing investigation about the concept mapping implementation in learning reading to improve the students' reading abilities. Some reasons of implementing concept mapping are (1) it refers to semantic visualization or semantic map; (2) it covers graphic arrangement describing major and minor ideas; (3) nodes is like map drawing like circles or squares which contain key words; (4) lines or arrow placed between the nodes have function as connecting links [10].

1.1 The Notion Of Concept Mapping

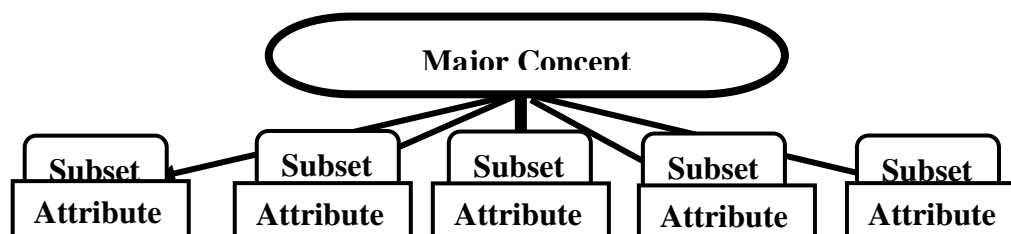


Figure 1. Skeleton of Classification Mapping Format (adopted from [10])

[10] propose four mapping formats of concept mapping covering narrative mapping format, descriptive mapping format; comparative and contrast mapping format, and classification mapping format. This study used

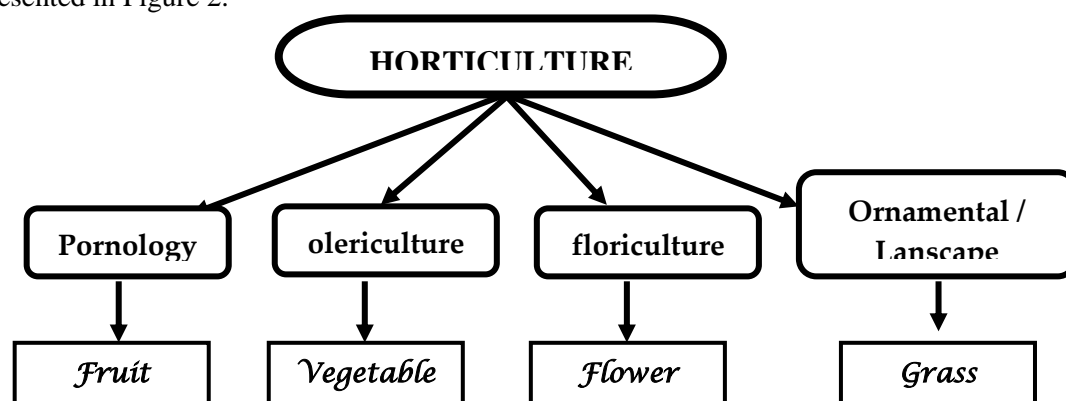
classification mapping format because the mapping was suitable to classification text pattern. The mapping format of classification is presented in Figure 1.

Three elements in the figure outline the mapping format. The first element is major concept node as the topic of the text. The second elements are subsets which link their relationships to the topic. The third elements are attributes which explain the specific type of each subset.

[8] states classification text is a common way to explain something by dividing the topic into parts and explaining each part as well. Classification in textbook is used to explain a topic that will be grouped into several parts. Meanwhile, [4] defines that classification text is the classification of something into group in accord with a criterion or several criteria.

Three reasons of using classification text in this study are: (1) it is one of the reading materials in reading subject (2) It is used to classify the topic into two parts: one main part and several supporting parts [8]. (3) It is based on the mapping design from Pearson and Johnson in [10] The example of classification text in classification format in concept mapping is presented in the following example.

The paragraph above has one topic and four supporting details. The mapping format of classification text above can be presented in Figure 2.



Horticulture, the study and cultivation of garden plants, is a large industry. Recently it has become a popular area of study. The horticulture field consists of four major divisions. First, there is pornology, the science and practice of growing and handling fruit trees. Then, there is olericulture, which concerned with growing and storing vegetables. A third field, floriculture, is the science of growing, storing, and designing flowering plants. The last category, ornamental and landscape horticulture, is concerned with using grasses, plants, and shrubs in landscaping.

(Adopted from Guide to College Reading, [17])

Figure 2. The Concept Mapping Strategy in Classification Text Pattern

Figure 2 has three elements comprising three nodes. The first node explains “*horticulture*”. The second nodes provide facts or examples to support the first node. The third nodes explain each subset such as *fruit*, *vegetable*, *follower*, and *grass*.

1.2 The Studies On The Concept Mapping

Relevant studies related to concept mapping are conducted by several researchers. [10] found the implementation of concept mapping at St. John’s University, Jamaica, New York enabled the students to synthesize experiential information and text information and reconstruct the nodes by filling the information with their own ideas and contents based on the text.

Furthermore, [6] in [1] found the implementation of concept mapping at University of Nusantara PGRI Kediri could improve the students’ reading comprehension in terms of paraphrasing, main idea, and inference. It could raise students’ participation when they were joining the reading subject in the classroom.

1.3 The Objective Of The Study

The study was conducted to know how concept mapping as a learning strategy can improve the students’ reading ability. The objective of this study is to develop the concept mapping to improve the students’ reading ability. Significance of the study covers (1) theoretical contribution is to provide the development of theory of concept mapping for teaching reading; (2) practical contribution is to provide English teachers for the improvement of teaching reading in the classroom.

2. METHOD

Classroom Action Research was used in this study consisting of four steps, namely; planning, acting, observing, and reflecting [5]. [7] states two views of the position in classroom action research are: (1) researcher as a teacher is to improve the quality of teaching in a classroom and (2) teacher as a researcher is to develop innovative learning strategy.

Two types of data covered quantitative data that describe students' achievement and qualitative data that describe classroom learning atmosphere. Five instruments that were used to collect the data are qualitative data were taken from observation sheet, fieldnote, and interview. Meanwhile, quantitative data were taken from the result of the students' test and questionnaire.

Twenty five students of English department of Sekolah Tinggi Agama Islam (STAI Ma'arif) Metro participated in this study. Two criteria of success of this study are (1) students' achievement is determined if the result of the students' individual score is equal or above 60 and the result of the students' questionnaires show positive responses for the benefit of concept mapping implementation. (2) Students' academic atmosphere is determined if the students are motivated in the joyful learning interaction using concept mapping implementation.

The data were collected in *Observing* stage of classroom action research step by using five instruments, namely; first, observation was done in each meeting of each cycle. Observation described the behavior and interaction among students and between students and teacher. Second, questionnaires were distributed to students that covered (a) students' motivation in learning reading using concept mapping, (b) students' opinion related to the implementation of concept mapping in learning reading.

Third, fieldnote was used to record related to (a) strength of the method in teaching and learning process and (b) the weakness of the method in teaching and learning process. Fourth, test was administered to students at the end of each Cycle. Fifth, interview was conducted to students at each meeting in each Cycle. The scope of interview covered (a) students' opinion about concept mapping implementation in learning reading, (b) students' perspective for concept mapping implementation in learning reading for the future.

The data were analyzed in *Reflecting* stage of classroom action research step by comparing the result of all data with the criteria of success. When the results of data analyses have successfully achieved the expected target, the learning strategy has proved to solve the learning problem. But when the data analyses have not successfully achieved the expected target, the learning strategy will be revised for the next Cycle.

2.1 Findings

2.1.1 Finding of Cycle 1

Four instruments that were used to collect the data in Cycle 1 are observation sheet, fieldnote, test, and interview. The data of observation and fieldnotes were collected by the collaborator; meanwhile, interview was conducted by the researcher.

2.1.1.1 Finding on the Students' Academic Atmosphere

The results of observation, fieldnote, and interview were used to know the finding on the students' academic atmosphere.

Table 1. The Result of Observation

Stage	The Aspect of Observation	Description	Conclusion
1. Preteaching	Students' interaction with their friends and teacher	No interaction from Students-Students and Students-Teacher.	Learning Atmosphere: Students-Students interaction for discussion and
2. Whilst-teaching	Students-Students Interaction and Students-Teacher interaction .	Students-Students Interaction and Students-Teacher interaction	Students-Teacher interaction for confirmation
3. Post teaching	Students-Students Interaction and Students-Teacher interaction .	No Students-Students interaction and Students-Teacher interaction	

Observation describes the learning interaction among the students and the students and the students with their teacher. The learning interaction occurs to discuss the topics given by the teacher.

Table 2. The result of fieldnote

I. The strength of the method in teaching and learning process: Students discussed with their friends to determine the topic and the Key-word for the important information . R.C (researcher's comment): <i>The implementation of concept mapping provides the students' interactions to share ideas with their friends.</i>
II. The weakness of the method in teaching and learning process: The difficulty of determining main idea and supporting details can cause the difficulty to fill the nodes from the diagram of concept mapping.
III Suggestions: The teacher should monitor the students' interaction when they find topic and main idea in determining key-word.

The result of the fieldnotes describes the learning interaction among the students to find important information. This learning interaction also encourages them to share their ideas.

Table 3. The Result of Interview to Students.

The Aspect of the question	Responses
1. Students' progress in learning reading	Concept mapping : (1) provides an easy understanding; (2) overcome the trouble; and (3) an easy way to find main idea.
2. Students' feeling after following learning process	Students feel happy, comfortable, and enjoyed.

The finding of the students' interview related to the students' progress in learning reading reveals concept mapping can help them in learning reading. The finding of the students' interview enables the students to feel enjoyed in following the learning reading.

2.1.1.2 Finding on the Students' Achievement

Table 4. The Result of Students' Reading

Score	Students
57	6 students
60	10 students
Above 65	9 students

The result of the students' reading score refers to the student's individual score. The implementation of concept mapping has improvement in students' achievement although three students got scores below 60. The finding of Cycle 1 only achieves one of the criteria of success for the students' academic atmosphere. Hence, the revision of the learning strategy was still needed in the following Cycle.

2.1.1.3 Revision of the Learning Strategy

The concerns of the revision of the learning strategy were: (1) learning scenario was revised by distributing the hand-outs of concept mapping to the students before they did the test. (2) The reading materials given to the students were short texts that could train them to find the topic, main idea and supporting details.

2.1.2 Finding of Cycle 2

Five instruments that were used to collect the data in Cycle 2 are observation sheet, fieldnote, test, interview, and questionnaire. The data of observation and fieldnotes were collected by the collaborator; meanwhile, interview, test, and questionnaires were done by the researcher.

2.1.2.1 Finding on the Students' Academic Atmosphere

The results of observation, fieldnote, and interview were used to know the finding on the students' academic atmosphere.

Table 5. The Result of Observation

Stage	The Aspect of Observation	Description	Conclusion
1. Preteaching	Students' interaction with their friends and teacher	Students –students Interaction	Learning Atmosphere: Students-Students interaction for
2. Whilst-teaching	Students-Students Interaction and Students-Teacher interaction .	Students-Students Interaction.	discussion and Students-Teacher interaction for confirmation
3. Post teaching	Students-Students Interaction and Students-Teacher interaction .	Students-students interaction and students-teacher interaction.	

The finding of the observation describes the learning interactions that happen when the students discuss the material with their friends and with their teacher to consult their works of concept mapping.

Table 6. The Result of Fieldnote

I. The strength of the method in teaching and learning process: Students shared their ideas with their friends to predict the topic, main idea, and supporting details. The students carefully read the reading text to determine the topic, main idea, and supporting details. R.C (researcher's comment): <i>The implementation of concept mapping encourages the student-students interaction to share their ideas and get important information carefully among the groups.</i>
II. The weakness of the method in teaching and learning process:
III Suggestions:

The result of record of fieldnote describes the learning interaction among students to share their idea and can make the students focus on reading carefully.

Table 7. The Result of Interview to Students.

The Aspect of the question	Responses
1. Students' opinion about concept mapping implementation.	Concept mapping provide : (1) helpful for getting main information; (2) easy way to understand information;(3) outline for guidance;(4) give a help for answer question;(5) easy strategy to understand information.
2. Students' perspective of concept mapping implementation for the future	

The finding of the students' interview dealing with opinion reveals that concept mapping helps students get outline of information and the students feel happy and comfortable in following learning reading using concept mapping. The finding of the students' interview related to students' perspective for the concept mapping implementation reveals that concept mapping makes the students easy to comprehend the text.

Questionnaires were distributed to 25 students dealing with how well the implementation of concept mapping could help students in learning reading. The finding of the questionnaires consisting of 8 items of questions reveals that 47% of the students gave response “*strongly agree*” and 53% of the students gave response “*agree*” for the benefit of concept mapping implementation in learning reading.

2.1.2.2 Finding on the Students' Achievement

Table 8. The Result of Students' Reading Score

Score	Students
66,7	14 students

74	7 students
83	4 students

The results of the students' scores were above 60. It means the implementation of concept mapping can improve the students' individual score.

The finding of observation describes good learning reading interaction among the students and between the students and teacher. Fieldnote describes learning interaction that occurs among the students to share their ideas. Interview reveals that students feel enjoyed joining the learning reading. The questionnaires reveal that concept mapping can enhance the students' motivation in learning. The results of the students' reading scores were above 60. The implementation of concept mapping has achieved the two criteria of success so Cycle 2 of the classroom action research was stopped.

3. DISCUSSION

3.1 Students' Academic Atmosphere

Students' academic atmosphere is closely related to the joyful learning interaction in the classroom. In this study, it was found that observation reveal two learning reading interactions that happened, namely; student-student interaction to discuss the important information and students- teacher interaction to consult the students' work. The findings of the learning interactions are confirmed by the study by [6] in [1] who found concept mapping implementation can raise the students' participation in learning reading. Thus, the implementation of concept mapping can create learning interactions that motivate the students' participation in learning reading process.

The result of the fieldnote reveals that learning interaction happen to student to share their ideas with their friends to use the key-word in determining important information from the reading text. The finding of learning interaction is supported by the study by [10] who states nodes or boxes lead the maps that draw like cycle, rectangle or squares containing the key words or phrase. Hence, concept mapping provides the students to use key words that are gotten from important information.

The finding of interview to students at each meeting in each Cycle reveals that (1) students feel comfortable and motivated to learn reading using concept mapping because concept mapping is helpful to students. (2) Concept mapping enables the students to know the outline of the information because concept mapping has guidance of outline of information using diagram. (3) Concept mapping is a suitable learning strategy for the future because concept mapping is an easy strategy to understand information. The findings of interview are affirmed by the study by [10] who states concept mapping is semantic visualizations or semantic map which covers a graphic arrangement describing how the written works are linked with the major and minor ideas. Thus, concept mapping provides visually graphic arrangement so that the students feel comfortable and easy to know the outline of information.

The result of questionnaire shows most students (47% for "*strongly agree*" and 53% for "*agree*") have opinion about concept mapping can assist them to find important information and enhance their motivation in learning reading. The findings of questionnaire are confirmed by [9] and study conducted by [11]. [9] states concept mapping consists of major concept on the top and specific concept beneath the general concept. The two concepts are presented by using arrows to show its relationship. [11] found concept mapping enabled the student to feel the joy of learning. So, the implementation of concept mapping makes the students motivated because concept mapping provides the diagrams as the guidance.

3.2 Students' Achievement

The result of the students' reading achievement in Cycle 2 showed all students have got scores above 60. The findings of the students' achievement are affirmed by study conducted by [6] and [10]. [6] found concept mapping can improve the students' reading comprehension dealing with the skill of finding main idea, paraphrasing, and inference. [10] investigated concept mapping enabled the students to synthesize experiential information and reconstructed the *nodes* by filling the information with their own ideas based on the text. Hence, concept mapping implementation can improve the students reading achievement because concept mapping enables the students to train the skills of reading by using the diagram.

The present study about concept mapping implementation can create joyful learning atmosphere and improve the students' learning achievement because (1) students feel comfortable to join learning using concept mapping; (2) students have good learning reading interaction among them and with their teacher; (3) concept mapping provides students guidance for understanding a text by using outline; (4) concept mapping create students' enjoyment, good learning interaction, and guidance that can help students' reading achievement improve well.

4. CONCLUSION AND SUGGESTION

The result of concept mapping can improve the students' reading achievement that cover three steps learning activities, namely; pre-teaching, whilst-teaching, and post-teaching.

Pre-teaching reading activity consists of two learning scenarios covering concept mapping modeling and learning activity. Concept mapping modeling is done by distributing hand-outs, displaying the diagram and the text using screen. Learning activity is done by distributing reading text and the diagram to guess which information that refers to major classification, subsets, and attributes.

Whilst-teaching reading activity is done by distributing reading text and diagram. The students discuss to determine topic, main idea, and supporting details with their friends when one of the students displays his works using screen.

Post-teaching reading activity is done by distributing another reading text and diagram to the students. The students discuss to determine topic, main idea, and supporting details with their friends and confirm their works with their teacher. The teacher sums up how to determine the important information that represents to the three elements of concept mapping diagram covering major classification, subset, and attribute.

Some advantages for students' learning atmosphere in concept mapping implementation happen in pre-teaching activity, whilst-teaching activity, and post-teaching activity.

Pre-teaching reading activity can create students' learning interaction between students and students to discuss the important information from the given text and students and the reading text interaction are to focus reading carefully. Whilst-teaching reading activity can create among students to discuss the important information and between students and teacher interaction to confirm their students' works. Post-teaching reading activity can create students' learning interaction among the students' group to share their ideas and students' learning interaction with their teacher to confirm their works.

English teachers who have the same problem in teaching reading are recommended to use concept mapping as an alternative strategy by some considerations. (1) The type of the text should be classification text, (2) the outline of concept mapping diagram should be correctly and clearly arranged, and (3) the given text should train students' skill for finding topic, main ideas, and supporting details.

English researchers who are interested in the study about concept mapping are suggested to conduct a research about teaching reading using concept mapping with different model of concept mapping format, such as; narrative, descriptive, and comparison – contrast format or other English skills, such as; writing, speaking, and listening.

REFERENCE

- [1] Cahyono, B.Y., & Widiati, "The Teaching of EFL Reading in the Indonesian Context" *TEFLIN Journal* : 2006, pp. 50-51.
- [2] Grabe, W., & Stoller, F.L *Teaching and Researching Reading*. Harlow: Pearson Education. 2004.
- [3] Hudson.T, *Teaching Second Language Reading*. New York : Oxford University Press. 2007
- [4] Jordan, R.R, *Academic Writing Course*. Quarry Bay: Thomas Nelson. 1990.
- [5] Kemmis, T., & McTaggart. R, *The Action Research Planner* (3rd ed). Victoria: Deaken University Press. 1988.
- [6] Kusen,M.. 2010. "Using Graphic Organizers to Improve Students' Reading Comprehension". Cahyono, B.Y & Mukminatien, N. (Eds), *Techniques and Strategies to Enhance English Language Learning*. Malang: State University of Malang Press.2010 pp. 92-93
- [7] Latief, M.A, *Tanya Jawab Metode Penelitian Pembelajaran Bahasa* (1st ed).Malang: Penerbit Universitas Negeri Malang. 2010.
- [8] McWhorter, T. K, *Guide to College Reading*. Boston : Little, Brown. 1986.
- [9] Munthe, B, *Design Pembelajaran*. Yogyakarta: Pustaka Insani Madani. 2009
- [10] Sinatra, Stahl-Gemake, and Morgan, Using Semantic Mapping after Reading to Organize and Write Original Discourse. *Journal of Reading*, Number 30. 4 – 12. 1986.
- [11] Srimulyaningsih, M.J.K. *Using Graphic Organizers to Improve Students' English Writing Skill in the Process of Communicating at the Fifth Grade Elementary School of Sekolah Citra Berkas Surabaya*. Unpublished thesis. Malang:PPs UM. 2010.