

# **MIND MAPPING TO FACILITATE STUDENTS' COMPREHENSION IN CONTENT SUBJECT INSTRUCTION**

**Evi Puspitasari  
PBI UMY**

## **ABSTRACT**

Mind-map is a kind of graphic organizers that assist students to organize information. It is usually used to brainstorm people's idea before writing and organize received information while reading. In content subject instruction, students are usually required to read textbooks that the content is about concepts and theories. The utilization of mind-map is considered as a good facility for students to study content subjects. This study aims at investigating how a teacher implements mind-map to facilitate students' comprehension in content subject instruction. Besides, this study is also to find out students' responses toward what the teacher does using that facilitative tool. A teacher who implements that idea is involved for a teaching journal as one of research data. Then, to attain the second research objective, two male and two female students are interviewed. The data will reveal the sequences of using mind-map to facilitate students' comprehension in learning a content subject and how students respond that implementation.

*Keyword:* Mind-map, mind mapping, content subject, students' comprehension

# CHAPTER I

## INTRODUCTION

### **I. Background**

Based on the curriculum applied in English Education Department at one of universities in Indonesia, subjects offered to the students are divided into three categories based on students' year. In the first year, students are exposed with English language skills. In the second year, the sophomores are introduced to content-based subjects in which they start to be familiar with pedagogical theories in a foreign language. In the third year, after being well equipped with good English skills and pedagogical theories, the seniors enrol research-based subjects to prepare their undergraduate thesis.

The conflicting issue arises is on students' readiness for moving from skill-based subjects into content-based subjects. In their skill-based subjects, they are exposed to improve their English four skills such as listening, reading, speaking and writing. Relating to reading materials, fiction book and stories about daily activities are employed. Vocabulary used in the materials is still familiar for them. Going up to the next level in the second year of their study period, they enrol content-based subjects where they meet books about pedagogical knowledge and theories. The focus is not on their English skills but on the materials which take their commitment of time and effort for reading and understanding.

Content-based subjects are quite challenging for the students since in the second year, some of them still struggle with their English language. It becomes more problematic because they meet academic terms and new knowledge that they are not

familiar with. In conclusion, the problems is twofold, dealing with the language proficiency and understanding the content.

Students have a number of strategies in reading. Guerro and Ramos (2015) said that some of them like highlighting important parts on the text and some others tend to prefer taking notes or drawing charts. Before doing that, what actually happens in the department is that they even read all parts once or twice more to really understand the content. That problem is more extensive since they also have to deal with dictionary when meeting some unfamiliar words which quite takes time. It might be an answer why students are not enthusiastic with reading.

To overcome that challenge, mind mapping can be a revolutionary strategy that solves the problem in the department. Mind mapping can take the place of students' traditional strategy on text comprehension. It is strongly supported by some researchers such as Siriphanich and Laohawriyanon (2010), Malekzadeh and Bayat (2015), Guerro and Ramos (2015) and Jain (2015). All of them showed that students who applied mind mapping could comprehend texts better than them who did not. In effect, mind map can be a good way to help students to understand the content textbooks they read.

## **II. Formulation of the Problems**

Responding the aforementioned problem above that support mind mapping as an effective way for reading comprehension, the researcher is interested in implementing mind mapping for content subject instructions. The research questions are formulated as follows:

1. How mind mapping can facilitate students' comprehension in content subjects?

2. What are students' responses toward the use of mind mapping to facilitate their comprehension?

### **III. Research Objectives**

From the research questions, the objectives of this research can be drawn as follows:

1. Short-term objectives
  - a. to investigate how mind mapping can facilitate students' comprehension in content subject instruction,
  - b. to identify students' responses toward the use of mind mapping to facilitate their comprehension in content subject instruction.
2. Long-term objectives
  - a. to get some inputs of new teaching techniques and activities used for content subject instruction as a part of effort to improve teaching quality in the department and university.
  - b. to increase teachers' motivation on finding and trying out current and interesting teaching techniques for their classroom.

### **IV. Research Benefits**

This research is expected to be beneficial for following parties:

- a. The Researcher

This research focuses on description of how mind mapping is used to help students comprehending their textbooks in content subjects and students' responses toward the implementation. First, by knowing the process of how mind mapping is technically used in the classroom, the researcher may know the steps and ways of using mind mapping in the classroom. Second, the findings elaborate students' responses in using mind maps for the instruction. The students' responses can be valuable inputs for the researcher to improve her teaching performance using the tool.

b. Teachers

The benefit is also addressed to teachers who are teaching content subjects. The finding provides recommendation on mind mapping to teach content subjects. They may implement the same technique in their own class to facilitate students' comprehension on the textbooks employed.

c. Other researchers

This research might be advantageous for other researchers who are interested in mind maps or graphic organizers for the education field. They might be fond of conducting research in this topic from different angle and perspectives.

## CHAPTER II

### LITERATURE REVIEW

The related scopes of discussion to support and contrast this study are three. First, the discussion goes to mind maps as the centre topic of this research. Second, concepts linked to students' comprehension are elaborated. Third, content subjects as a field where mind maps are going to be used in this research are also explained.

#### **Mind Maps**

Mind maps also well-known as graphic organizers or semantic map are firstly created by Tony Buzan in late 1960s (Zhou, 2016). At the first time it was created, it aims at note taking. As time goes by, people realize that mind map can be an amazing to to organize information. Getting inspired from the human brain, Buzan (2006) appointed that the shape of mind map is like brain cells. It means that mind map is designed to encourage human's brain to work fast, efficiently, and in a style that the brain also works naturally.

Coming to the characteristics of mind maps, it is usually started with a single concept placed in a centre and followed by subsections in branches of the main point (Buzan, 2006). In making mind maps, students do not need to write the concept in a long sentence. Key words in the form of phrases that define ideas are preferred. In consequence, it is a big challenge for the students because they have to prioritize important information and present it through keywords. Therefore, they have to understand the quintessences of the reading materials.

Mind maps provide benefits for the users. That statement is in line with Buzan (2006). First, they can save more time in reading. Usually, they need to read every single words from the first line to the last line. When reading books with a foreign language, it makes them more under pressured since they do not only struggle with new information but also

unfamiliar terms on the materials. Second, people will remember better when they use mind map in reading because they summarize and make notes while reading. It is in parallel with Boardman, Roberts, Vaughn, Wexler, Murray & Kosanovich (2008) who said that good readers do summarizing and making notes using simple words. That activity generates a process to make information they get stay in their long term memory chamber. Third, people is able to balance their left brain which is tasked with visual and right brain which is responsible for analytical thoughts. It has been popular that in mind mapping, people can draw a simple picture that can be associated with a concept they learn. Supported by Taylor (2014), when the two sides of brain work together at the same time, it allows multiple intelligences to be draw together. Fourth, Buzan also mentioned that mind mapping is recommended because it enables people see the tree of concept holistically. It makes their understanding complete and not separated which is essential because getting the concept in isolation makes people have different interpretation toward to concept they learn.

### **Students' Comprehension**

Students' comprehension is obtained from being exposure with language inputs. The inputs are gained by practicing receptive skills, listening and reading. Through both of the skills, besides getting the language model, the students also have a chance to sharpen their comprehension skill. Birch (2011) stated that comprehension is an ability to gain meaning by listening and reading. From the meaning, new knowledge is processed in students' mind.

In relation to processing new knowledge obtained from reading or listening, students' comprehension is a fundamental issue. Compared to listening, reading comprehension is more needed by higher education students since in that level, students are more demanded to read rather than to listen. Textbooks are more frequently found than audio books. In effect, the significance of comprehension especially in reading in an education field is undeniable. It is in line with Clarke, Truelove, Hulme and Snowling (2014). They said that in educational system, reading comprehension is considered as an important skill to students' progress. The progress here means students' improvement to achieve a learning goal mentioned in the

curriculum. The more they comprehend materials they get in school, the more chances they get success achieving the goal.

Viewing that reading comprehension is prominent in higher education, teachers are considered as an agent to assist students get success in achieving a learning goal (Billmeyer & Barton, 1998). Interesting teaching activities can be one of contribution that the teacher's as an agent, give to the students. The activities created are required to be struggling reader friendly. It purposes on the ones that can feel helped are not only those who have a great reading skill but also those who are still struggling in reading.

One polemic problem that makes readers especially adolescent readers are not successful in reading comprehension proposed by Boardman et al (2008) is that they do not practice what a good reader does. That is to stop for a while, summarize the texts and go back to re-read again after finishing their reading. That is why teachers are suggested equipping the students with some skills. Bordman et al (2008) recommended the skills adopted from what good readers usually do in reading. Those are activating prior knowledge, employing graphic organizers, applying comprehension monitor strategy, practicing summarization skill, and improving skills in asking and answering questions.

For kinds of activities that can help students comprehend reading texts, studies from several researchers provide recommendation. First, O'Neil (2011) promoted visual literacy to get students more comprehend materials. Visual literacy that she means is a book with pictures. Therefore, greater comprehension can be gain by visually increasing students' interest. Second, Rizqiya (2013) recommended mind mapping to help students comprehend texts. Her research result showed that mind map enable students recall their background knowledge. Activating students' background knowledge or prior knowledge helps them connect one concept that they know before to new information in the texts Bordman et al (2008). Third, Rahaman (2014) suggested applying group work discussion for students'



comprehension. His research revealed that by doing group work, students interact and socialize to others. From the interaction, they can obtain new information for their classmates. It can be a recommended solution to overcome comprehension gap among the students. They can share what they know and complete their understanding by adding information that they miss while reading.

### **Content Subjects**

Content subjects are more familiarly known as content areas. That term refers to information and knowledge that teachers teach. Elaborating more, it is knowledge that the students are expected to learn in the subject given. It deals with facts, concepts, theories and principles taught and learned in specific academic courses rather than related skills.

In this research context, content subjects are defined as theory based subjects in which English Education students learn about knowledge, concepts and principles of teaching English as a Foreign Language. Based on the college curriculum, the students get Language Acquisition and Learning and Principles of Teaching and Learning in the first second year. Continuing to the second semester as a sophomore, the students enrol Language Assessment and Evaluation, Issue in Language Teaching and Learning, and Teaching English as a Foreign Language.

Challenges faced by the students are not only about the content but also the language. Their English proficiency still needs improvement. It becomes harder when they need to succeed in comprehending subject matter content. It is because the content subjects require them a high level of reading and writing. If they do not have sufficient language knowledge to read textbooks, they experience huge difficulties in reading the books and understanding the specific terms used in particular subjects.

## **CHAPTER III**

### **RESEARCH METHOD**

#### **I. Research Design**

This research uses qualitative descriptive research design. According to Maxwell (2011), research with a qualitative design is a research which aims to understand the process not outcome through events and actions taking place in participants' surroundings. In line with this research which focuses on identifying the process of how mind maps are used to facilitate students' comprehension in content subjects. Additionally, Maxwell (2013) also mentioned one of qualitative research goals that is attempting to understand events and cases through the respondents' voices. That is in the same side of this second focus of this research in which students' responses toward the use of mind maps in content subject classes are identified.

#### **II. Research Setting**

Research setting covers two types of discussion, setting of place and setting of time. First, for setting of place, this research is going to be conducted in the English Education Department (EED) at one of reputedly private universities in Indonesia. The fundamental reason why this research is done in that location is because that university especially the department is now implementing the curriculum where content based subjects are offered for second year students. It means that a revolutionary teaching technique is needed to assist sophomores who are still struggling with English language to understand concepts in the courses which are based on contents and pedagogical theories. Second, for the research setting, the research plans to do the research starting from April – May 2017. The data are going to be collected right after the proposal is accomplished and when the content subject courses for sophomore are still on going.

#### **III. Research Participants**

This research involves two content subject classes to implement mind maps. It means that the research participants are sophomores in the department of English Education at the aforementioned university. To know their responses toward the use of the facilitative tool, mind maps, four students, two males and two females, from two classes in the department are going to be interviewed. To get rich data, communicative, participative, and cooperative students based on recommendation from the teacher are chosen.

## **II. Research Procedures**

This research has numbers of step to accomplish. Those are administrative and permission process, confirmation on the participants' permission and availability, data collection, data analysis and discussion, research report writing, research report presentation and follow-up process. The details are described as follows.

### **Step 1: Administrative and permission process**

The researcher is required meeting the head of department to ask for permission for conducting the research. Since for this semester, the researcher is assigned to teach one of content subject classes in this department, she does not need to make agreement with a certain amount of parties. She needs to meet the head of the department to ask for permission of conducting the research in her own class. In this meeting, the researcher tells the background and rationales why this research is significantly needed to do. If several documents are needed for the permit, the researcher is going to provide them and ask for them to the related institution.

### **Step 2: Participants' permission and availability**

In this step, the researcher does not need to do abundant amount of action because she is able to schedule the implementation in one of her lesson plans. She only needs to prepare the materials for teaching the classes and give overviews about mind maps to the students. The overview is necessary to do to avoid students' unfamiliarity with the tool. Thus, the students are not getting lost in following the instruction to make a mind map for a certain material discussed in the class.

### **Step 3: Data Collection**

The next step is collecting data. In this step, the researcher does the implementation. It looks impossible for the researcher to observe fully while she is teaching so that she writes a teaching journal to record. Then, she is able to know what happens in the class thoroughly by reading the journal after implementing the technique. Field notes will have been prepared for the observation. It aims to help the research stay focused on the aspects that she wants to get from the journal to answer the research question.

To answer the second research question, the researcher chooses four students to be interviewed. After assigning the students, she is going to ask for their agreement and availability to do the interview. The time when the interview will take place is decided based on the agreement. After

conducting the interview, the researcher will transcribe the recorded interview and will do member checking to ensure that her interpretation are in line with what the interviewees mean.

#### Step 4: Data Analysis

After data are gained, the researcher is going to analyse the data using coding which consists of three steps; open coding, axial coding and selecting coding. In open coding, the researcher needs to separate parts of data that are used from the ones that are not. After that, the researcher study the data, compare them, and categorize them based on the theme appeared (Lue, 2008). After doing open coding, the data are going to be processed using axial and selective coding.

#### Step 5: Research Report Writing

In this step, the researcher presents research findings in a written form that meets academic writing standards. Drafts of Best Practices are also arranged as research report appendices. The researcher also prepares presentation materials in PowerPoints to socialize the research findings.

#### Step 6: Research Report Presentation

After writing a research report and preparing materials on slides of power point, the researcher is going to present the findings and discussion to the related institution.

#### Step 7: Follow-up

Having finished with the report, the researcher is going to give the research result by attaching Drafts of Best Practices to the department. The result may provide suggestion and inputs that are possibly beneficial for the institution to formulate new policy related to teaching and learning.

### **Outcomes**

- a. A research report entitled Mind Mapping to Facilitate Students' Comprehension in Content Subject Instruction
- b. Documents about teaching procedures of using mind maps in content subject instruction

## CHAPTER IV

### FINDINGS AND DISCUSSION

This research has not been conducted yet. Some steps of preparation are still on progress. The researcher is now designing lesson plans to socialize mind map for students to help them understand the content books and activities to implement that technique. The implementation is going to be done five meetings during this semester. It is commenced in September to October 2017.

### REFERENCE LISTS

- Billmeyer, R. & Barton, M.L. 1998. *Teaching reading in the content areas: if not me, then who? Second edition*. Colorado: Mid-continent Research for Education and Learning.
- Birsch, J. R. (2011). *Multisensory teaching of basic language skills, third edition*. Baltimore, MD: Paul H. Brookes Publishing Company.
- Boardman, A. G., Roberts, G., Vaughn, S., Wexler, J., Murray, C. S., & Kosanovich, M. (2008). *Effective instruction for adolescent struggling readers: A practice brief*. Portsmouth, NH: RMC Research Corporation, Center on Instruction.
- Buzan, T. (2006). *The ultimate book of mind maps: unlock your creativity, boost your memory, change your life*. Thornson
- Guerrero, J.M. & Ramos, P. (2015). Mind mapping for reading and understanding scientific literature. *International Journal of Current Advance Research*, 4(11), 485-487.
- Jain, S. (2015). The comprehensive studies of how mind mapping technique helps to understand the concepts and ideas in science teaching. *International Journal of Scientific and Research Publications*, 5 (12), 284-286.
- Malekzadeh, B. & Bayat, A. (2015). The effect of mind mapping strategy on comprehending implicit information in EFL reading texts. *International Journal of Educational Investigations*, available online @ [www.ijeionline.com](http://www.ijeionline.com), 2(3), 81-90.
- Maxwell, J.A. (2013). *Qualitative research design: an interactive approach*. California: Sage Publication Inc.
- O'Neil, K. E. (2011). Reading pictures: developing visual literacy for greater comprehension. *International Literacy Association*, 65 (3), 214-223.

Rahaman, A. (2014). Reading comprehension through group work activities in an EFL classroom: An action research report. *Working Papers on Culture, Education and Human Development*, 10 (2), 1-8. [http://www.uam.es/otros/ptcedh/2014v10\\_pdf/v10n2eng.pdf](http://www.uam.es/otros/ptcedh/2014v10_pdf/v10n2eng.pdf)

Rizqiya, R. S. (2013). The use of mind mapping in teaching reading comprehension. *ELTIN Journal*, 1(1), 32-43. <http://e-journal.stkipsiliwangi.ac.id/index.php/eltin/article/view/54/53>

Siriphanich, P. & Laohawiriyanon, C. (April 10, 2010). Using mind mapping technique to improve reading comprehension ability of Thai EFL universities students. *The 2<sup>nd</sup> international conference on humanities and social sciences*. Faculty of Liberal Art, Prince of Songkla University.

Taylor, M. (2014). *Mind maps: quicker notes, better memory, and improved learning, third edition*. Createspace Independent Pub

Wolf, S.A. (2003). *Interpreting literature with children*. Mahwah, NJ: Erlbaum

Zhou, S. (2016). Scaffolding Chinese college students' English learning through mind mapping. *International Journal on Studies in English Language and Literature*, 4(1), 31-35.