

UTILIZING MIND MAPPING AS ASSESSMENT TOOL FOR READING COMPREHENSION

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Abstract

Until now, there are still many students who get difficulty in reading comprehension, it is hard for them to gain the essence of information among the overlapping sentences. Therefore, the lecturer provides them strategies to handle it. Among others is mind mapping which facilitates the students in acquiring the important informations of the textbook effectively. The fact shows that mind mapping has been applied in some schools even in higher level of education which is intended to assist students in reading comprehension. However, there is too little attention in assessing it whereas mind mapping can be another alternative assessment tool for reading comprehension. By doing ongoing assessment, mind mapping can provide the lecturer with the information needed to develop appropriate lessons and improve instruction. This article explores on how the to utilize mind mapping as assessment tool rather than just as an assignment for reading comprehension.

Key words: *mind mapping, assessment tool, reading comprehension*

A. INTRODUCTION

Reading comprehension enables the readers to acquire information and give outcomes after reading activity. However, in comprehending the content of passage in a textbook, the students should be able to derive the essence of information relating to the topic among the overlapping sentences. Team of five (2006) states that the reading skill will be improved depends on the students' ability to understand each sentence in the text. It is easy to understand the simple sentences, but in English textbook for college students, especially English educational students, there must be complex sentence, compound sentence, complex compound sentences, and advanced vocabularies used by the native writer to express the ideas. It will need more effort for them to comprehend it. therefore, in reading activity, reading comprehension strategies can be used to help the students comprehend the content.

The lecturer may have varieties of reading comprehension strategies which is appropriate to his class in order to help his students comprehend the material. According to Kavinishahi and Zafarghandi (2016) there are three strategies that are commonly used in reading comprehension: skimming and scanning, mind mapping and summarizing. The lecturer may choose one of strategies which are considered appropriate with the students' needs to help the students in comprehending the topic. In additional, Ardakani (2015) mentions that mind mapping technique can help students to improve their reading comprehension ability.

Commonly in lecture, the students create Mind mapping as a learning tool and get more understanding about the material given in the class. Besides, Verbeke (2016) mentions that there are several ways in using mind mapping, such as: teaching tool, learning tool, assessment tool, course design tool and etc. In line with it, Buzan (1993) also says that "if the purpose of an examination is to test students' knowledge and understanding rather than their writing ability, the mind map is the ideal solution". Thus, it can be a consideration that mind mapping can be utilized as an alternative assessment tool for assessing students' reading comprehension. In fact, mind mapping has been used in schools, universities and colleges worldwide, but there is too little attention in assessing it.

It is proved by many studies related to the application and influence of mind mapping in many aspect of education, such as a study by El-Mona (2008), "The influence of Mind Mapping on eighth graders' science achievement", Budd (2004) applied mind mapping as classroom exercises, D'antoni (2005) in *Journal of Chiropractic Education*, "*Applications of the Mind Map Learning Technique in Chiropractic Education*", Cain (2001), "*Using Mind Maps to raise standards in literacy, improve confidence and encourage positive attitudes towards learning*" and etc. In contrast with researchs related to mind mapping as assessment tool, only a few of researcher done a research related to mind mapping as assessment tool, such as, G. Smith et al (2016) using mind mapping to assess student social learning outcomes, Asmara (2015) used mind mapping as assessment tool to assess student learning outcomes in chemistry. Based on the theories which has been explained above that mind mapping can be used as assessment tool, those become a consideration by the writer to discuss in this article about how the

lecturer can utilize mind mapping as assessment tool rather than as assignment for reading comprehension.

B. DISCUSSION

1. The benefit of mind mapping for assessment tool

College students must do effort to engage with the textbook content effectively, if the students fail to engage with the way materials are presented on the textbook, the students will fail to achieve successful learning. Through Mind Mapping strategy the students will be facilitated to be better in comprehending the textbook. While, Buzan (2004) also says that mind mapping allows the students to make their own connections between ideas, also the use of images, colours, and keywords to ensure students comprehension. Mind Mapping is used because it allows the students to interpret the topics by their own way so that it can help the students' reading comprehension of the textbook and collected as their assignment.

Mind mapping allow the students to interpret and express their ideas about the topic without rely on the students' language levels. because it accurately gauges the knowledge that have been absorbed by the students, which is clearly showed in landscape layout of a piece of paper at once. Therefore, it can show a more accurate picture of the students' knowledge at once. It also displays the students' knowledge, as they make connections from the general to details information, between topics and sub-topic in their own mind mapping. Mind Mapping also offers students a creative and flexible method of note taking (by contrast with traditional linear notes)

By utilizing mind mapping as assessment tool, it can provide the lecturer with the information needed to develop appropriate lessons and improve instruction for students because mind mapping can give the lecturer a visualization of the students' knowledge so that it can reflect the students reading comprehension. Mind mapping gives the lecturer an opportunity to communicate with what the students really thought Thus, Mind mapping can be another alternative assessment tool for reading comprehension.

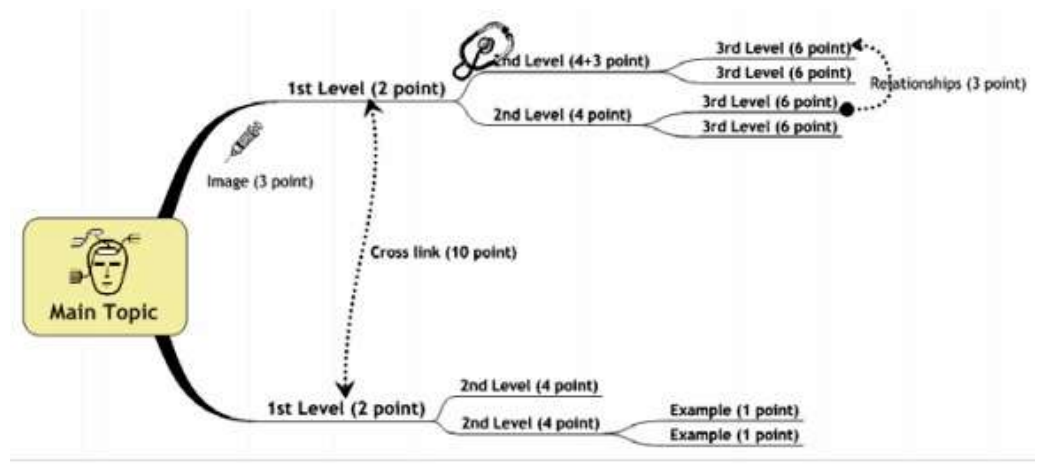
2. Mind Mapping Scoring System

Since the students' interpretation of passage is difficult to quantify, whether they really understand about the textbook they read or not, the rating scales and

rubric assessment is needed to guide the assessment process. The rubric assessment is used to assess students quality whether the quality of mind mapping performance or content, meanwhile the scoring system used to assess the quantity of mind mapping, it will check item by item of mind mapping whether the students' mind mapping have covered the information which is intended to cover. It is started from the main idea or central image to the sub theme and sub-sub theme. The scoring system is proposed by D'Antoni, Zipp and Olson (2009), as follow:

Table 1. Scoring system of mind mapping

- 1st level concept links (2 point for each if valid)**
- 2nd level concept links (4 point for each if valid)**
- 3rd level concept links (6 point for each if valid)**
- 4th level concept links (8 point for each if valid)**
- Cross links (10 point for each if valid)**
- Examples (1point for each if valid)**
- Relationships (3 point if valid)**
- Picture, Image and Figure (3 point if valid)**
- Invalid component (0 point)**



The image above explain that the main point of mind mapping is its link from main topic to very detail informations. It means that the more links that the students can apply in their mind mapping, the more point they will get. It can be seen from four levels of link and cross link, it is caused by the hierarchy rules of

the mind mapping, it means that every mind mapping must start from main idea to the very details information. In line with it Fardiansyah (2015) proposes that at least there are 4 elements of mind mapping such as main topic, sub-theme, order, and hierarchy lines. the main topic will be the subject of whole mind mapping, then the sub theme is the branches which is related to main topic, each of branch may have more than one details; it is called as sub sub-theme, meanwhile the hierarchy lines show the relationships among level, The image also present that more branches of each topic as its details, will get higher point. Other additional point is got from example, relationship and image/picture/figure. Meanwhile, the invalid component is not counting.

While considering the use of mind mapping as a gradable piece of student work, the lecturers can give advises or assessment of the students' Mind Mapping and a rubric for assessment had to be developed. The way in assessing the quality of students' Mind Mapping can be observed by using the assessment rubric of Mind Mapping as follow:

Table 2. Mind Mapping Assessment Rubric

MIND MAPPING					
Categories	Beginning + / 1	Developing ++ / 2	Accomplished +++ / 3	Exemplary ++++ / 4	Score 1-4
Comprehensiveness	Not clear: There are significant elements that are missing from the mind map	Present: The map has adequate representation of each topic and sub topic to demonstrate a basic understanding of the topic	Clear: The map is complete but missing one or two less significant elements	Stands out: The map completely defines the main idea, topics and sub topics. They all are represented in mind map	

Organization	The map is arranged with the minimum number of elements. These are arranged only or predominantly in one form (linearly)	The is organized with a limited number of branches and elements	The map has adequate organization with some branches and elements connections. Although there might be links between elements some are missing	The map is well organized with element integration and topics linked where appropriate. Feedback loops are also used where appropriate. The branch structure is sophisticated	
Communication	Limited use of Key words. Some images are not applicable	Key words are used. Average understanding of topic	Good use of key words and connected to central topic. Good understanding of topic	Highly effective use of key words and deep understanding of topic.	
Layout	Little or no use Of colour, or links to show connections between ideas	Some effort touse colour, or links to show connections between ideas	Clearly uses colour, or links to show connections between ideas	Effective use of colour, or links to make connections between ideas meaningful	
Correctness	The map is naïve and contains misconceptions about the topic area. Inappropriate terms are used	The map has some subject matter inaccuracies but these are not fundamental	The map has few subject matter inaccuracies but these are not fundamental	The map integrates elements correctly and reflects an accurate understanding of the subject matter with no misconceptions	

Adapted from: Beyond Monet and Robbie O'Connor (2011)

The students' Mind Mapping are measured by this rubric in order to get the accurate assessment. There are five categories in measuring Mind Mapping, such

as: comprehensiveness, organization, communication, layout and correctness. These each category has four sub categories that is scored from four points for exemplary, three points for accomplished, two points for developing and one point for beginning. All scores for each categories is added. The highest mark is 20, to get the final score, the rubric scores can be translated into grade exemplar which is proposed by Loncto (2008). In order to have a clear view of the rubric and grading exemplar, it presents as follow:

Table 3. Translating the grade exemplar

Point Earned	Letter Grade	Translating to a Point System	Recordable Points
20	A+	$\frac{20}{20} \times 100 =$	100
19	A+	$\frac{19}{20} \times 100 =$	95
18	A	$\frac{18}{20} \times 100 =$	90
17	A-	$\frac{17}{20} \times 100 =$	85
16	B+	$\frac{16}{20} \times 100 =$	80
15	B	$\frac{15}{20} \times 100 =$	75
14	B-	$\frac{14}{20} \times 100 =$	70
13	C+	$\frac{13}{20} \times 100 =$	65
12	C	$\frac{12}{20} \times 100 =$	60
11	C-	$\frac{11}{20} \times 100 =$	55
10	D+	$\frac{10}{20} \times 100 =$	50
9	D	$\frac{9}{20} \times 100 =$	45
8	D-	$\frac{8}{20} \times 100 =$	40
7	Unacceptable Range		
6			

5	
4	
3	
2	
1	

The steps in doing assessment is started by preparing a mind mapping model of chosen material, this model will be a comparison to check the students' mind mapping. The scoring scale is used to check the quantity of students' mind mapping whether it has covered all the key words that should be presented in mind mapping, whether the information missing or not. Then the score from scoring scale will be calculated into rubric assessment to obtain the quality of the students' mind mapping performance and content. At last the rubric assessment score can be translating by using grading exemplar to get the final score.

3. The Relationship of Mind Mapping to Reading Comprehension

English department students may enter the classroom with different levels of reading which they may have different needs. Some of them may lack of information and require more explanation from the lecturer, while others students may have comprehended the content that the lecturer intends to cover. Due to these students' different needs in reading comprehension, it is necessary to have an ongoing assessment in reading comprehension, because Rhodes and Shanklin, (1993) state that assessment provide the lecturer with the information needed to develop appropriate lessons and improve instruction for all students. In assessing reading comprehension, the assessment tool for college students in general usually done by giving comprehension check questions as in standardized testing, but assessment itself is more than just a test. A single assessment cannot represent the students' reading comprehension of the material, thus the lecturer should use multiple assessment, because Snowling (2009) states that reading comprehension also can be assessed by analyzing its comprehension products of representations, such as written work, assignment, conversation, discussion and so on.

Mind mapping as one of its comprehension product is popularized by Buzan (2005) who claims that it is an enormous superior note-taking method. It give a large number of effectiveness in every aspect. Moreover, (Ingemann, 2008) also

says that by mind mapping one can develop their ability in memorizing, brainstorming, learning, as well as creativity. In comprehending a text the students must have background knowledge which is divided into two, background knowledge of the language and background knowledge of the world (Stanovich, 1991; McNamara, 1991, Silberstein, 1994). This means through mind mapping the students are guided to develop their background knowledge of the text they are to read. They recall the existing knowledge and relate it with the text. By doing this they are practice to brainstorming.

Moreover, Kaufman (2010) argued that “mind mapping is a useful technique to use while reading, since the non-linear format allows you to view the entirety of your notes at a glance, then easily place new information in the appropriate branch or make connections between ideas.” This is in line with the theory of top-down process proposed by Nuttall (1996, cited in Brown, 2001). Top down is a process where the reader draws their own intelligence and experience to understand a text. Beside, the involvement of the generic structure of the text also covered by bottom-up process. Bottom-up is deals with the linguistics aspects such as words, phrase, grammatical cues and discourse marker (Brown, 2001). Generally, mind mapping combines both process of reading comprehension: top-down and bottom-up processes. In other words, it adopts the way brain organizes our knowledge and experiences. In simple words, mind map is a visualization of the brain works. Mind mapping technique is similar to semantic-map technique. What makes them different is the use of colors but most of all they are the practice of brainstorming which help the reader to link the information each other in order to be easy to remember.

The students’ mind mapping as the product of their reading comprehension should be able to show how much they have already comprehended of the passage they read. It can be seen through the indicator of reading comprehension that covered by the indicators of mind mapping assessment. Each categories of mind mapping can cover more than one indicators of reading comprehension such as, finding the topic, main idea and specific information, these indicators are covered in the first categories of mind mapping is comprehensiveness, because in this category the student will get the highest score if their mind mapping can define the topic, main idea and supporting detail.

There are four levels of score in every category, such as in beginning level the student usually have unclear representation of topic, main idea and additional information/supporting detail of the material, it is proved by there are significant elements that are missing from the their mind mapping. In developing level, the student mind mapping has presented adequate representation of each topic and sub topic to demonstrate a basic understanding of the topic. Accomplished level, the students' mind mapping have showed clear information about their understanding on topic, main idea and additional information but still has one or two missing significant elements. Meanwhile, in exemplary level the student mind mapping is in stands out form, it has defined the main idea, topics and sub topics. They all are represented in mind map without any one element missing.

Next indicator of reading comprehension is reference words, in mind mapping it represents by the use of key words. This indicator is showed clearly in the third category of mind mapping, communication. In the beginning level of communication the students are still limited in using key words, in developing level they have use a few of key words but they still have average understanding of topic. Furthermore in accomplished level they have good understanding of the topic and also good use of key words and connect to central topic. In the exemplary level the students have had highly effective use of key words and deep understanding of topic, implicitly in this category the first indicator (finding topic) of reading comprehension also have been covered.

The last indicator of mind mapping is guessing the words meaning from the context, this indicator demands for a deep understanding from the students, if he does not comprehend the topic then he will have a misconception of the topic. In the correctness category of mind mapping this indicator is covered. Such as in beginning level the students' mind mapping is naïve and contain misconceptions about the topic area and inappropriate terms are used in their mind mapping. This means that the students are fail in guessing the words meaning from the context, if he has a good reading comprehension he should not do a misconception of the topic. The second level is developing level, in this level the students' mind mapping have some subject matter inaccuracies but these are not fundamental. Meanwhile in accomplished level there are only a few subjects matter inaccuracies. In the last level (exemplary level), the students mind mapping

integrates the elements correctly and reflects an accurate understanding of the subject matter with no misconceptions.

From that comprehensiveness, communication and correctness categories of mind mapping the five indicators of reading comprehension have been covered mean while organization and layout categories support all indicators of reading comprehension, because a good organization means that the students mind mapping is well organized with element integration and topics linked is appropriate, feedback loops are also used where appropriate and the branch structure is sophisticated. Meanwhile a good layout represents an effective use of colour, or links to make connections between ideas meaningful. Those explanations above show that mind mapping and reading comprehension has a relationship each other. It is expected that mind mapping as a product of reading comprehension can reflect the students' reading comprehension, so that it can be assessed through mind mapping assessment.

C. CONCLUSION

Mind mapping consists of key words which link from central image to the detail informations, although it lacks of sentences in contrast with standard note taking, it does not mean that mind mapping present less information then standard note taking. Albert einstain says that 'if you cannot explain it simply, you do not understand it well enough'. It become a consideration that mind mapping with its simplicity can provide more information. It also can visualize the students' knowledge, which help the lecturer to get information needed to develop appropriate lesson and improve instruction for students. In addition, mind mapping has relationship to reading comprehension, it is proved from the process of getting important information and the similarities in indicator of mind mapping assessment and reading comprehension. It is expected that mind mapping can reflect the students reading comprehension by utilizing mind mapping as assessement tool.

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