

## USING CONCEPT MAP SOFTWARE TO IMPROVE SUMMARY WRITING QUALITY

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**Abstract:** This study suggests that conceptual summarizing of multiple sources is key to deep learning and useful to language learning strategies. The participants of this study were 68 students from three classes studying in upper intermediate reading course at English Department of State Polytechnic of Sriwijaya in Palembang. The t test indicated that the students who received strategic summarizing intervention in this study received significantly higher marks after eight reading and summarizing measures using computer based concept map. Collected data from questionnaire and focus group discussion showed that during summarizing from multiple sources using computer-based concept map the students employed prereading, conceptual reading and summarizing strategies. We could note the student activities which stressed the various aspects of conceptual learning. It is suggested that conceptual summarizing of multiple sources using computer-based concept map is used in English reading because it allows students to process information from sources, without which they are not able to organize main ideas into a coherent summary. It also facilitates students to become familiar with the textual structure of English academic summary writing.

**Keywords:** summary, multiple sources, concept map

Most English subjects at State Polytechnic of Sriwijaya (SPS) are developed with so many contents that students simply memorize a large number of facts. The learning materials do not facilitate students to perform a deep learning of the subjects. Empirically, a deep learning includes not only memorizing the lessons, but also using a range of sources to select, evaluate, and transform information for solving a problem (Gordon, & Debus, 2002). An assignment, as one of learning requirements in most subjects at SPS, is not an effective learning due to lack of precessing skills. The assignments are frequently accomplished by students with a lot of copious words with few pharaphrases or summaries. To perform assignment, students must be able to construct their own understanding of concepts, by integrating the information of their previous learning with the information from their knowledge of current sources. The information is not only remembered but also processed in order to be implemented in solving problem (Fosnot, & Perry, 1996).

This paper addresses these concerns by discussing how students read and summarize from multiple sources and reviewing the previous studies on what works to improve summarizing. It is obvious that active processing of information during summarizing, not passive learning, leads to quality learning.

Learning from various sources seem problematic to SPS students because most of them find the information complicated. To solve the problem, they must know how to organize the information. So, the aim here is to encourage self regulatory by helping learners become aware of the strategies of organizing information from source texts and use them effectively. For that reason, it would be useful to raise their awareness of these reading strategies in order to make them not only more active but also more critical about their reading.

Teachers could improve learning quality by teaching students through reading and summarizing from multiple source texts. As a result, the purpose of this study were to study the development of English reading comprehension after an intervention, more specifically summarizing strategies by using concept maps.

Active learnings that engage students in interaction with and manipulation of concept map are relevant to constructivism learning theory (Cunningham & Duffy, 1996)), construction-integration model (Kintsch 1988), and meaningful learning (Novak, 2002).

Some studies used concept mapping as a learning tool. Zwaal and Otting (2012) investigated the impact of concept mapping on the process of problem-based Learning. In the study the graphical tool was used to promote conceptual thinking that enhanced problem-based learning process. Another study, case study of ESP students, reported that using computer-generated concept maps improved students' reading comprehension level. The students found that their reading activities more visualitic and interesting (Omar, 2015). Based on the aforementioned problem, the following research questions were addressed:

1. What do the students search when they summarize from multiple texts?
2. Are there any significant differences in the scores of summary tests comprised of multiple source texts between pretest and posttest?
3. How do they use concept map software to help summarize from multiple texts?

The following discussion is organized as follows: Literature Review presents brief overview of related work; Methodology describes the design of the learning intervention; Findings and discussion include the results and discussion of the results and the implications. Finally, Conclusion sums up the study based on the results and discussion.

## **LITERATURE REVIEW**

### **Summarizing from Multiple Texts**

Many reported studies on summary writing are relevant to learning model developed by Brown dan Day (1983), Kintsch dan van Dijk (1978) in which the model describes summarizing as an activity that focus on identifying main ideas. Some studies investigated how students summarize source texts, their difficulty and the effect of summary on learning such as: identifying main idea and their difficulties (Johns, 1985), the effect of summarizing in helping learners focus on main ideas (Rinehart, Stahl dan Erickson,1986), writing a summary to improve students' reading comprehension of expository texts (Armbruster, Anderson, & Ostertag, 1987). A similar study also reported by Kennedy (1985) that investigated some differences between skilled and less skilled readers in summarizing from sources. The study highlighted the diffences in the process and efficacy of summary writing. Most of the studies concerning summarizing were conducted in native language, meanwhile, few studies investigated summary in foreign and second language learning context.

After being neglected in the last few decades, summarizing research has increased recently, particularly in EFL learning. A study by Chimbanga (2010) showed that high proficient learners were better than less proficient learners in selecting and integrating main ideas from sources to enter their summary. Other study on the effect of summary writing on improving reading comprehension of foreign language learners suggested that summary writing improved learners' performance in reading Pakzadian dan Rasekh, (2012)

### **Summarizing Strategy**

Learning strategy refers to learning method that is intentionally employed by a learner to overcome his or her problem (Oxford,1993). Summary is a text that is produced by condensing the ideas of source text into main ideas. (Hare & Borchardt, 1984). Summarizing strategy is defined as techniques used by learners to identify main ideas and construct the main idea into coherent paragraphs (Swales & Feak, 1994).

Idris, Baba dan Abdullah (2008) identified learning strategies used by SL learners in Malaysia that adopted the strategy of expert writers. Many reports suggest the benefits of teaching summarizing, however, many teachers do not emphasize it in their reading lesson. They are frequently not sure about how to teach summarizing.

Most studies on reading and summarizing used single text as source. Few studies investigated summarizing from multiple sources and most reading instructions seldom emphasize multiple source texts. When summarizing from multiple texts, we should consider the use of concept mapping strategies in helping students organize main ideas in source texts (Barzilay, Elhadad & McKeown, 2002).

### Concept Map

Concept map tool is a computer-based learning aid. The instructional software can help students organize concepts. It can facilitate visual and spatial design elements including lines, arrows and highlight key concepts that help facilitate learning. (Novak & Cañas, 2008).

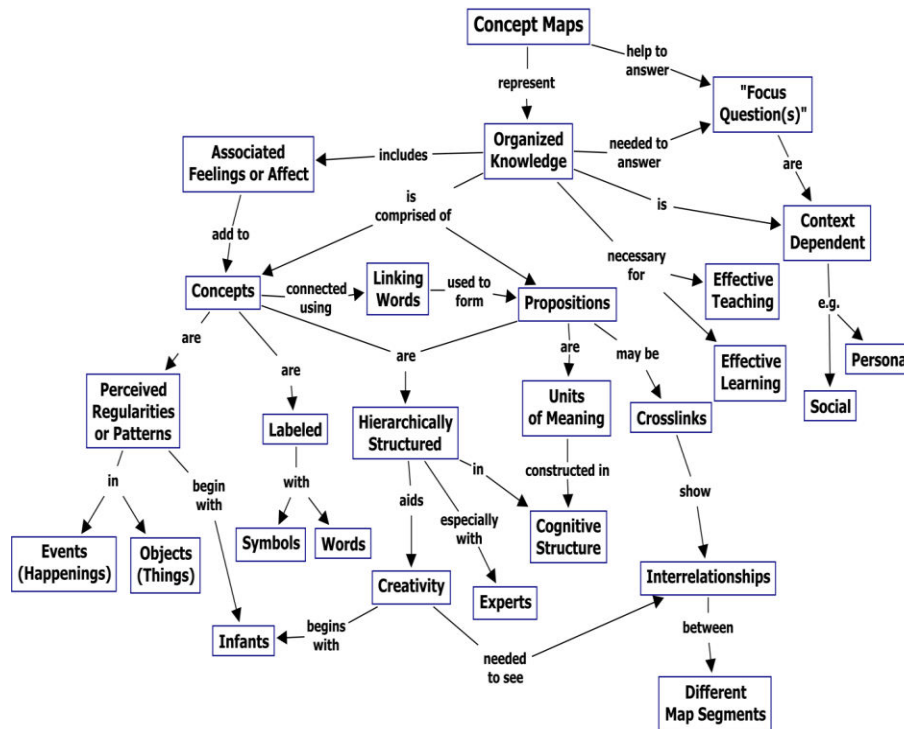


Figure: A concept map showing the key features of concept maps (Novak & Canas, 2008).

The benefit of summarizing using concept mapping strategies is that the mapping strategy could be employed to improve learning various subjects. Through the scaffolding of the strategies, especially reading can be improved. To learn effectively, students must know how to learn. So, the aim here is to help learners become aware of these strategies and use them effectively. For that reason, it would be useful to raise their awareness of these reading strategies in order to make them not only more active but also more critical about their reading.

Multiple texts are source reading materials that discuss similar or diverse and even contrast perspectives on the same topic (Bråten & Strømsø, 2006). Many studies have shown that multiple texts learning results in information processing. To do so, the present research uses multiple texts that researchers have used to study summarizing, namely a conceptual summarizing.

During reading multiple texts readers absorb information and process it to make a coherent summary. This study assumes that readers construct *mental representation* from source texts gradually and hierchacically. They map the *mental representation* of previous text on the recent text (Kintsch, 1988; Gernsbacher,1990). Using *multiple sources*, learners can develop additional *mental model representation* or integrative model in which the

students will be able to transform their knowledge to new situation (Rouet, Britt, Mason and Perfetti, 1996)

Reading multiple informational texts on the same topic is strongly suggested because students are frequently dealt with the complex task of using multiple texts while doing their tasks (VanSledright & Kelly, 1998). Research on the use of multiple texts in language learning is essentially lacking, and we believe that summarizing may give an even greater challenge when students try to build mental representations of multiple texts than when they summarize single texts. Most studies on multiple texts conducted were conducted in history context (Stahl, 1995; Rouet, Britt, Mason & Perfetti, 1996; Spivey & King, 1989; Reisman, 2012) and the results showed that learning history using multiple documents students remember better. Similarly, Hynd, Holschuh and Hubbard (2004) reported their study in which reading multiple texts is a great challenge because a reader needs to synthesize or integrating information across multiple sources so that it facilitate better recall.

## **METHODOLOGY**

### **Learning Process**

The purpose for conducting this study was to realize the effect of intervention of multiple-text summarizing in semester 3 of English Department at SPS. There were 68 students participating in this study, out of 93 students. Although the students had taken many courses related to reading in the previous semesters, those courses mainly focused on reading single texts.

The English subject, Reading 3, was aimed to help students become capable readers of using source texts. The first step in developing integrated units of the reading lesson was to decide some topics for team to discuss. Materials for the class consisted of chapters from dowloded articles, and reading assignments reflecting cross cultural topics that include: Introduction, Family Value, Academic Value, Work Ethics and Culture Shock. Real class activities were implemented mainly through collaborative learning in the classroom for seven weeks. Initially, students worked in small groups of three students, discussing, and identifying important ideas and finally summarizing using concept map software. Teachers scaffolded primary strategies such as predicting a topic before reading, underlining/highlighting important information, paraphrasing/summarizing source texts, constructing concept maps using computer-based concept map, and writing summaries. Teachers assisted students in accomplishing the task of summarizing from multiple texts using concept map software when they could not achieve on their own. The students received feedbacks from the teacher, discussed among peers, and reciprocated the teaching of new material .

This questionnaire was developed based on some previous studies (Penrose, 1992; Wade, Trathen, and Schraw, 1990; Oxford, 1990; Stahl, Hynd, Britton, NcNish, dan Bosquet, 1996). The questionnaire, was piloted before using, measured perception of reading strategies that the students used before reading, during summarizing (conceptual reading) and after reading (summarizing).

In FGD, the participants' exchange of ideas allowed researchers to get insight into their activities and perceptions that couldnot be directly observed. This focus group involved as many as 10-12 students in each group to participate based on a discussion notes. This study used homogenous group of participants who share similar characteristics such as gender group, education, ethnic and social class background (Folch-Lyon & Trost, 1981).

The participants were asked to answer open-ended questions in a given time and facilitated to comment in response their peer participants so that they could more clearly clarify their perception regarding a topic to enrich data, and crosscheck previously collected data. The open-ended questions were prepared in accordance with the objective of the

research considering their reading and writing summary. The data were analyzed in the following ways (Elo & Kyngäs, 2008). After the verbal data were collected from focus group discussions and then transcribed, categories were identified from the transcripts. We coded the transcripts of FGD generating the categories such as prediction, prereading, conceptual reading and summarizing. A code is a label given to an instance in a text related to a category in the data which has been previously classified as important. Codes could be revised or added during the interpretation. In addition to coding, we arranged the sequence, abstracting, clarifying and finally interpreted.

The pretest and posttest scores of their summary texts were calculated to see whether learning intervention could improve students' quality summary writing. To address whether any difference existed between pretest and posttest, t-test was performed on the mean scores of summary texts generated before and after the intervention. Summary texts were assessed using Rubric for Assessing Summary Writing (Frey, Douglas and Hernandez, 2003). To improve the interrater validity and reliability, the summaries were assessed by three raters.

## FINDINGS AND DISCUSSION

Based on the resulted survey using Likert scales, the individuals had shared some summarizing strategies such as guessing topic before reading, predicting some relevant important information, deleting trivial information, joining main ideas and comparing different main ideas from different source texts. The students reported the frequency of using each strategy by choosing the following options: 1. Strongly disagree, 2. Disagree, 3. Neutral, 4. Agree, 5. Strongly agree.

**Table 1. The Frequency of Reading to Summarize Strategy**

Guess the topic before reading	Predict some relevant important information	Deleting trivial or redundant information	Joining main ideas	Comparing main ideas
4.2429	3.8	3.94	4.129	3.8

The strategy “guessing the topic before reading” was most frequently used by the students, meanwhile, “predicting relevant important information” and “comparing main ideas” were less likely used. Guessing the topic before reading help them focus on the main information required by their summary. Furthermore, predicting relevant important information” and comparing main ideas help them link the main ideas.

The data collected from FGD in this study covered various reading strategies affecting the summaries of the participants. It involved selecting specific topics on a focussed area of summarizing strategies generated during the previous survey questionnaire.

The strategies were classified into three stages of the reading strategies (1. prereading, 2. conceptual reading, and 3. summarizing.

There were a number of prereading strategies students used in the first stage as with other study (Chimbganda, 2010) including eliciting back ground knowledge through (a) guessing, (b) predicting a topic and (c) focusing on main idea.

(a) eliciting prior knowledge through guessing,

*“I tried to remember what the teacher taught us.....” (students' response in FGD)*

In prereading stage, the students first predicted a topic from the title or subtitle, then read the introductory paragraph of the text to check the prediction:



(b) predicting a topic

*I guess what I am going to read.....*

(c) focusing on main ideas

*I read the title and subtitle to get the main idea.....*

As in the similar study (Spivey & King, 1989), this study points out that an important strategy of conceptual reading stage is the construction of text structure (connecting one text to other texts) that requires the students to actively integrate what they read from different sources.

*I compared the texts to compare the information .....(students' response in FGD)*

The summarizing stage requires writing activities by students either constructing or revising their concept map. This study confirms the framework of constructive learning proposed by Novak (2002):

*When I am reading the texts I identify some clues about how the writer organize their information.*

The students found the conceptual processing strategy to be helpful in writing a coherent summary.

*I had never learned this kind of summarizing instruction this way. "I thought learning reading was just asking comprehension questions,"*

*"The software helped me link main ideas and build my own summary,"*

There is strong evidence that the teaching intervention improves summary scores. In this data set, it improved marks, on average. There is a significant difference emerged in the scores between pretest and posttest ( $t = -10,383$  ,  $p= 0.000$  ).

**Table 2. The t test Results**

Paired Samples Test								
	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 pretest - posttest	-.58887	.44002	.05458	-.67570	-.45783	-10,383	64	.000

**CONCLUSION AND SUGGESTION**

Results from this study has indicated that computer-based concept mapping designed to teach summarizing from multiple sources may facilitate students' reading and summary writing. This study has provided evidence why students should pay attention to information from multiple sources. Summarizing using concept a map enabled students to make propositional relations between ideas on their constructed concept maps through three main stages: 1. prereading, 2. conceptual reading, and 3. summarizing. These concept maps help students navigate main ideas to examine connections. This study suggested that students learn to process information from multiple sources with computer-generated concept maps to be able to write a coherent summary. Consequently, teachers have to spend more time in the training program of using computer-based concept mapping.

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