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Effects of Computerized Graphic Organizers on EFL Students' Expository Reading

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Abstract: The study aims at comparing facilitative effects of two types of computerized Graphic Organizers (GO) in English-as-a-Foreign-Language expository reading, and investigating GO-related training's influence on learners' reading strategy. The two types of GOs are Concept Mapping (CM) and Graphic Organizer Representing Text Structure (GORTS). 115 high school students were enrolled in the study, and were divided into three groups: One received CM training, one received training of GORTS, and the other received traditional outlining training. It was found that GORTS was more effective in facilitating learners' of whole-text level comprehension than CM and outlining, but no significant difference existed among the three approaches in sentence level comprehension and transformation from text information to problem-solving ability. Besides, learners favored GOs as facilitative reading strategies more than outlining.

1. Introduction

Reading skill is considered as one of the most important skills that determine students' academic success (Leppänen, Aunola, & Nurmi, 2005). As learning proceeds, learners will be exposed to more expository texts rather than narrative texts. Therefore, learners' academic success depends more on their capability of expository texts comprehension (Pretorius, 2006). Expository texts reading is also considered much more challenging (Oliver, 2009).

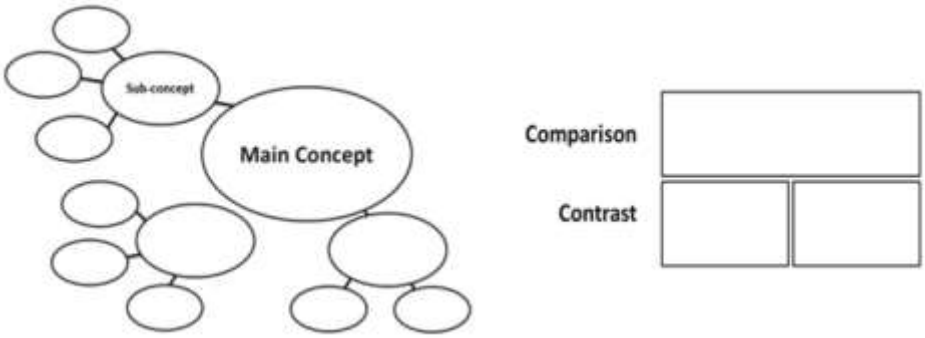
The challenge of expository reading necessitates the integration of reading strategies into reading course and learning material. Among different reading facilitative strategies, Graphic Organizers (GOs) have been recommended as an effective one. Generally, GOs stand for visual representation of texts. Though relevant research and application have been carried out for decades, most of them are in first language context (Jiang & Grabe, 2007). Foreign language learners generally meet bigger problems in

expository reading, and need more facilitative reading strategies. Before putting GOs into application in EFL reading, it is important to know whether they could serve the purpose.

Among different types of GOs, two types have more consistent positive research results: Concept Mapping (CM) and Graphic Organizer Representing Text Structure (GORTS) (e.g., Chang et al., 2002, Oliver, 2009, Liu et al., 2010). Therefore, it is more reasonable to start with CM and GORTS (see Figure 1).

Figure 1

A sample of Concept Map (*left*) and a sample of Graphic Organizer Representing Text Structure (*right*)



2. Literature Review

2.1 The understanding of reading comprehension process

Text comprehension can be divided into three different levels from shallow to deep as the following: 1) the surface structure, 2) the textbase, 3) the situation model (Van Dijk & Kintsch, 1983; Kintsch, 1994). The surface structure level refers to understanding of literal meanings of words, phrases, and their linguistics links; the textbase level is constructed on surface structure level, and it refers to whole-text semantic meaning and text structure understanding; the situational model level is constructed on the previous two levels, and it refers to integration of information from text into problem-solving ability (Kintsch, 1994).

2.2 Graphic Organizers

The theory that can support the use of all types of GOs to facilitate reading is Dual-Coding Theory (Paivio, 1971). It states that human mind processes visual and verbal information in two different channels, and relevant research indicates that understanding of verbal information can be enhanced if corresponding visual representation is presented (Anderson & Bower, 1973).

2.21 Concept Mapping

Concept Mapping is an instructional and practice tool that can help learners organize information. When learners read through the text, they are expected to process information

bottom-up from words to sentences, sentences to paragraphs, and finally to the whole text. When they confirm particular concepts and their relationships, and start constructing concept maps, they have to re-organize their prior knowledge of the text top-down from a main concept to its branches (Liu, et al., 2010). The two information-processing approaches with opposite direction may help learners better the understanding, and strengthen the memory (Kintsch & Van Dijk, 1978). The most widely used concept map adopts the strategy of setting main concept as the center, and linking it to related concepts (Fisher, Gleitman, & Gleitman, 1991) (see Figure 1).

Chang et al.'s (2002) study compared three methods of CM on the text comprehension and summarization abilities of 125 fifth grade students' science reading. Students were divided into three groups to receive different training: map correction, scaffold fading, and map generation. The map correction group was given a complete but partially incorrect map structure to modify. The scaffold fading group studied expert maps first, then moved to finishing provided skeletal maps, and then moved to finishing open-ended maps by themselves. The map generation group was required to finish open-ended maps by themselves. Test results showed that map correction group's text comprehension and summarization ability were significantly higher than others, and the scaffold fading group was a little bit better than the map generation group. The study indicated that the structured of a concept map task may influence students' reading comprehension of texts.

Oliver (2009) studied on 6th grade students' reaction to CM and their performance on CM exercise relevant to reading. The research result showed that the majority of students preferred CM, and students performed better on the particular type of exercise that required classifying pre-selected terms under superordinate categories. Moreover, little performance difference on concept-mapping was noted between students with different reading abilities.

Liu et al. (2010) did a research on computer assisted CM's effects on EFL college students' reading comprehension. Their research indicated that computerized concept mapping benefit low-level students rather than high-level ones, and inspired students to adopt relevant reading strategies (e.g., listing, enforcing, and reviewing).

Though CM shows an overall positive effects in facilitating reading comprehension, the following two points still need to be noted: 1) Most of the previous research used "comprehension" as a general term in their research, and did not specify which comprehension level CM showed facilitative effects on. 2) Some of measurements were not precise enough to reflect CM training's effects on students, like a vocabulary test, or test borrowed from reading material itself.

2.22 GO Represent Text Structure

Research on text structure preceded that of GOs, and it is agreed in literatures that students' awareness of text structure can better their reading comprehension. When learners have mastered knowledge of text structures, they would have expectation in reading about how the text information would be organized, and can modify their expectation as reading proceeds (Meyer, 2003; RAND Reading Study Group, 2002). The expectation and the modification process could facilitate reading comprehension.

The limited number of text structures recurs across discourses, especially in expository texts, which make it possible for the employment of GORTS without sophisticating the learning process (Meyer, 1985).

According to Meyer's (1985) classification, expository text structures include:

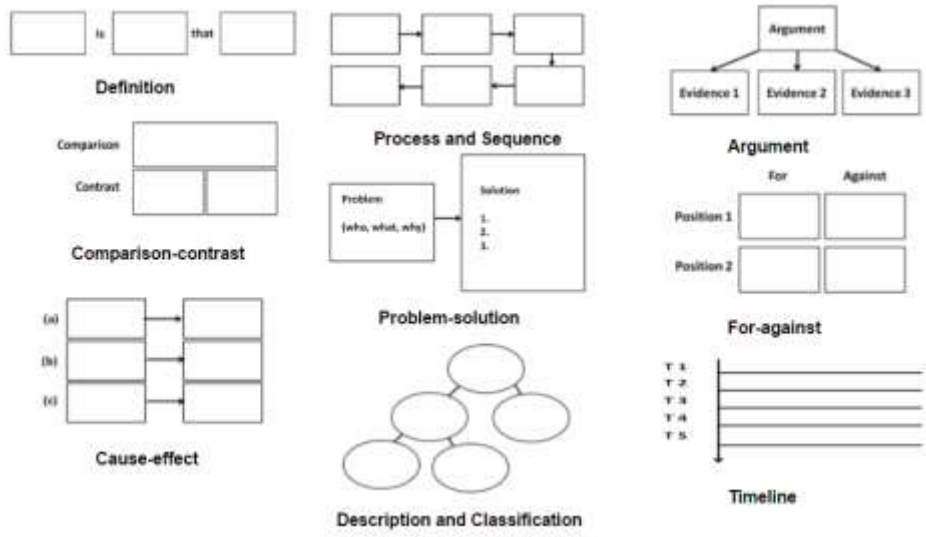
1. Description: The author describes a topic
2. Sequence: The author uses numerical or chronological order to list items or events
3. Compare/Contrast: The author compares and contrast two or more similar events, topics, or objects.
4. Cause/effect: The author delineates one or more causes and then describes the ensuing effects
5. Problem/solution: The author poses a problem or question and then gives the answer.

Besides the above structures, Mohan (1986) added more structures as definition, classification, argument- reasoning, and for- against.

Jiang and Grabe (2007) suggested a set of standardized easily-drawing samples of GORTS, which is shown in Figure 2.

Figure 2

Examples of Graphic Organizer Representing Text Structure



The facilitative effects of GORTS on learners' overall reading comprehension are confirmed in many studies, but most of them are limited in first language context (Jiang & Grabe in 2007). There have been some research on GOs' application in EFL reading in recent five years, but none of them adopted GORTS.

2.23 Computerized GOs

The advantages of computerized GOs can be concluded as following: (1) Teachers can trace students' works online (Chiu, et al., 2002). (2) GOs can be shared and co-edited.

By now, the above two advantages are more obvious than they were 10 years ago. Many standard web 2.0 online products allow learners to draw and revise their GOs freely

without the trouble of downloading any software, such as Mindmeister, or Gliffy (see Figure 3).

Figure 3

Online tools for producing Graphical Organizers.

3. Research Design

3.1 Participants

Participants came from a private training school in Beijing, mainland China. They were composed of 115 11th or 12th grade high school students, divided into three groups: two experiment groups were given training of CM and GORTS separately, and the control group was given traditional outlining training. The training lasted for 2 months with 4 hours classroom instruction per week, and individual homework.

3.2 Reading Materials

Intermediate-level expository texts extracted from previous English Entrance examinations to Universities were selected as the reading materials in the research. The required vocabulary size was 3000-5000 words.

3.3 Instruction

There were five key points the instruction of CM: 1) Decide the theme for the article 2) Find the main idea and relevant ideas 3) exclude irrelevant ideas 4) Draw concept map based on previous analysis 5) Produce a summary based on concept mapping. The mapping style adopts “one map with related nodes”.

There were five key points the instruction of GORTS: 1) Understanding different types of text structure and relevant visual representation 2) Identify relevant text structure for each paragraph and whole text during reading 3) Draw GORTS based on previous analysis 5) Produce a summary based on GORTS.

The control group received vocabulary, grammar, and outlining instruction. There was also the requirement for them to produce a summary after reading.

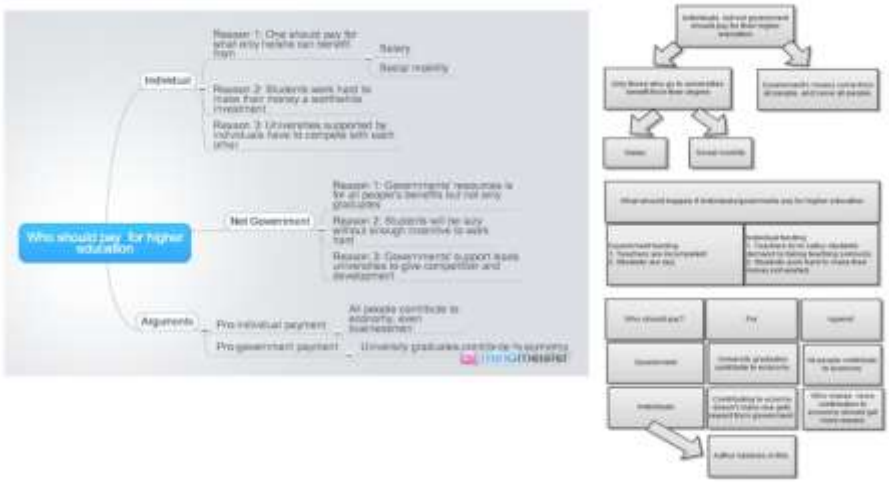
3.4 Practice

Both CM and GORTS were introduced as practice tools for students. Homework for students receiving CM training was to produce Concept Maps by Mindmeister after reading, and write a summary based on their Concept Maps (see Figure 5); homework for students receiving training of GORTS was to draw GORTS after reading by Gliffy, and writing

summary based on the produced GORTS (see Figure 6). The group receiving traditional outlining training was only given homework of writing summary after reading.

Figure 5

A sample of a concept map made by students on Mindmeister (*left*); a sample GORTS made by students on Gliffy (*right*)



The summarization based on GOs was included in students' homework because previous research showed that merely by adopting GOs as practice functions little in facilitating reading comprehension, and drawing GOs should better serves a specific goal (e.g., Bean et al., 1986, Spiegel & Barufaldi, 1994).

3.5 Measurement

Using a pretest-posttest design, all students participated in two reading tests; one before the training and the other at the end of instruction. The pretest was directly given to students. The posttest had different procedure for different groups: groups receiving GOs training were required to produce GOs and use GOs to guide their question answering, and students receiving traditional outlining were required to answer questions directly. The test time for three groups was the same.

Test materials were taken from previous English Entrance examinations to Universities, and the questions in test were divided into three types according to different reading comprehension levels: 1) the surface structure level, the textbase level, and the situation model level.

After test, students were surveyed by a questionnaire on their reading strategies. The questionnaire was revised from Liu, et al.'s (2010) questionnaire.

4. Results

4.1 Computerized GOs' influence on students' reading comprehension

The first objective of the study is to explore and compare the effectiveness of computerized GOs (CM and GORTS) in EFL reading facilitation. Relevant findings are based on three groups' two reading tests.

All three groups' test scores showed improvement on their overall performance (see Table 1); the One-way ANOVA Analysis was used to compare three groups' improvement degree, and the result indicated that no significant difference existed in their improvement degree (see Table 2). It means in the study the training of both GORTS and CM did not show significant advantages on improving students' overall reading performance compared with the training of outlining, which goes against the findings of some previous studies (e.g., Liu et al., 2010, Jiang & Grabe, 2007).

Table 1

Three groups' overall performance on pre and posttests

	Students number	Score			
		Pretest		Posttest	
		Mean	SD	Mean	SD
GO Group	38	156.58	53.34	175.79	39.02
CM Group	36	165.28	46.63	176.11	35.72
Control Group	41	168.29	47.16	180.00	37.95

(Total score is 300)

Table 2

One-way ANOVA analysis on three groups' overall test performance changes

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	286.439	2	143.219	1.747	.179
Within Groups	9183.127	112	81.992		
Total	9469.565	114			

** p < .05; ** p < 0.01; *** p < .001*

Besides, no significant difference was found in three groups' improvement on surface structure level and situation model level comprehension (see Table 3 to 5). The result indicates that neither GORTS nor CM have significantly better facilitative effects on learners' understanding of words and phrases' literal meanings and transformation from text information to problem-solving skills.

Table 3

Three groups' performance on the first and the third levels of comprehension

	Score of structure level comprehension				Score of situation model level comprehension			
	Pretest		Posttest		Pretest		Posttest	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
GO Group	61.58	19.66	66.84	16.13	44.21	20.09	47.37	14.83
CM Group	63.61	18.85	69.44	13.51	48.06	17.70	48.33	13.42
Control Group	64.15	18.16	68.78	16.76	50.73	17.23	53.17	14.04

(Total score of each part is 100)

Table 4

One-way ANOVA analysis on three groups' test performance changes on surface structure level comprehension

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	76.804	2	38.402	.226	.798
Within Groups	18997.978	112	169.625		
Total	19074.783	114			

** p < .05; ** p < 0.01; *** p < .001*

Table 5

One-way ANOVA analysis on three groups' test performance changes on situational model level comprehension

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	165.628	2	82.814	.395	.675
Within Groups	23474.372	112	209.593		
Total	23640.000	114			

** p < .05; ** p < 0.01; *** p < .001*

However, as for the textbase level comprehension, ANOVA analysis showed that the significant difference exists among three groups' score improvement (see Table 6 to 7).

Table 6

Three groups' performance on the second level comprehension

	Score of textbase level comprehension	
	Pretest	Posttest

	Mean	SD	Mean	SD
GO Group	50.79	19.37	61.58	13.66
CM Group	53.61	15.52	58.33	15.02
Control Group	53.41	17.69	58.05	14.87

(Total score is 100)

Table 7

One-way ANOVA analysis on three groups' test performance changes on textbase level comprehension

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1596.538	2	798.269	6.973*	.001
Within Groups	12820.853	112	114.472		
Total	14417.391	114			

** p < .05; ** p < 0.01; *** p < .001*

The further t-test indicates that GORTS has significantly better efficacy in improving learners' understanding of text structure than CM. (see Table 8)

Table 8

Two contrast in ANONVA analysis

	Contrast	Value of Contrast	Std. Error	t	df	Sig. (2-tailed)
Textbase level improvement	Control Group and Experiment Groups	9.89	4.167	2.375	112	.019
	Two Experiment Groups	7.08	2.488	2.844*	112	.004

** p < .05; ** p < 0.01; *** p < .001*

4.2 Computerized GOs' influence on students' reading strategies

The second objective of the study is to investigate GOs training's influence on students' reading strategy. Relevant findings are based on three groups' survey results.

4.21 Students' attitude toward reading facilitation

Students' reaction to reading facilitation was examined by question 2-3 (Table 9; refer to Appendix). It is found that most group members of the groups receiving training of GOs

preferred to use reading facilitative strategies during reading, and favored using visualization more than marking important points directly. Nearly in the contrary, most of the control group members preferred marking important points directly during reading to using reading facilitative strategies.

It is also worth noting that more than half group members of the group receiving training of GORTS preferred to use reading facilitation "often or always". Maybe GORTS offers students more useful scaffolding in reading comprehension compared with CM or outlining.

Table 9

Students' attitude toward reading facilitation

		Never or seldom	Sometimes	Often or always
Whether to use any reading facilitation during reading	GO Group	26.3%	18.4%	55.3%
	CM Group	25.0%	41.7%	33.3%
	Control Group	61.0%	26.8%	12.2%
		Marking important points	GOs (Visualization)	Others
Which facilitative strategy is more favorable	GO Group	10.5%	76.3%	13.2%
	CM Group	19.4%	72.2%	8.3%
	Control Group	92.7%	4.9%	2.4%

4.22 Students' attitude toward summary writing

Students' reaction to summary writing was examined by question 4-5 (Table 10; refer to Appendix). Most group members of the groups receiving training of GOs found writing words summary important, whereas more than half of the control group members found summary writing unimportant.

It is interesting to note that the groups receiving training of GORTS and CM preferred different methods of summarization. Most members from the group of GORTS preferred summarization one paragraph by one paragraph, whereas most members from the group of CM preferred summarization after finishing whole text reading. The possible reasons may be that GORTS and CM offered reading facilitation in different ways: GORTS aims at helping learners match structures of every part in texts to their visual representations, and CM aims at capitulating readers' understanding of the whole text by visualization.

Table 10

Students' attitude toward summary writing

		Never or seldom	Sometimes	Often or always
Do you think summary is an important strategy	GO Group	10.5%	42.1%	47.4%
	CM Group	19.4%	27.8%	52.8%
	Control Group	58.5%	31.7%	9.8%
		One paragraph by one paragraph	Summarize whole text after reading	Others
Which strategy of summarization do you think is better	GO Group	92.1%	7.9%	0.0%
	CM Group	30.6%	69.4%	0.0%
	Control Group	46.3%	53.7%	0.0%

4.23 Students' attitude toward the taught strategies' application

Students' attitude towards the taught strategies' application was examined by question 6-7 (Table 11). About half of each three group members thought the taught reading strategies help little with applying ideas in readings into their own writing.

As for the question whether the taught reading strategies help with applying text structure in reading into writing, the answers of most members from the group receiving CM training and control group were "Never or Seldom". In comparison, most members from the group of GORTS thought the taught strategies help at least sometimes.

It could be seen that most students thought both GOs strategies and summary helped little with applying reading ideas into their own writing. However, the strategy of GORTS is thought to be more useful when applying text structure of reading into writing compared with that of CM and outlining.

Table 11

Students' attitude toward the taught strategies' application

		Never or seldom	Sometimes	Often or always
Does taught reading strategies help when putting ideas in reading into writing	GO Group	44.7%	36.8%	18.4%
	CM Group	50.0%	33.3%	16.7%
	Control Group	51.2%	34.1%	14.6%
		Never or seldom	Sometimes	Often or always
Does taught reading strategies help when putting text structure	GO Group	15.8%	47.4%	36.8%
	CM Group	55.6%	36.1%	8.3%

of the reading into writing	Control Group	68.3%	22.0%	9.7%

4.3 Limitation

It was suggested that extended training of GOs would offer a better opportunity to examine GOs' effects (Jiang & Grabe, 2007). However, the training time in the study lasted only for two months, which was limited by students' course session in school. A more defensible research could have a longer training time.

5. Conclusion

5.1 The effectiveness of strategies of GOs on students' reading comprehension

The strategies of GOs show no more significant effectiveness in facilitating learners' overall reading comprehension compared with the strategy of outlining. The result confirms some previous research, but goes against some others (e.g., Armbruster et al., 1991, Chang et al., 2002, Liu, et al., 2010). Considering the contradictory finds from previous studies, it appears that overall reading comprehension is not a good standard to be used to examine the effects of GOs.

For different comprehension levels, the facilitative effects of GOs vary. GORTS is much more effective in facilitating learners' textbase level comprehension than CM and outlining, which means GORTS can help learners grasp the whole-text semantic meaning and recognize text structure. However, neither GORTS nor CM are more effective in helping learners with the surface structure level and situational model level comprehension.

It could be concluded that at least GORTS has better facilitative effects in learners' textbase level comprehension in the short term training. To know whether its long term effects are the same further exploration is needed.

5.2 Students' attitudes towards reading strategies

Learners have more interests in using facilitative strategies of GOs during reading compared with the strategy of outlining. The result confirms many previous research (e.g., Oliver, 2009, Liu et al., 2010).

Summary writing is generally seen as an important way to help learners grasp the whole-text meaning and text structure. It appears that through the different approaches of training, learners also have different attitudes towards summary writing. Learners receiving training of GOs favored summary writing more than learners receiving outlining training. The reason may be that GOs can function as scaffolding for summary writing, which could make the writing more convenient and organized, and outlining is still too abstract to use as the guidance for summary writing. Besides, the training of GORTS gives learners more confidence in applying text structures into their own summary writing compared with that of CM or outlining.

References

Anderson, J. R. & Bower, G. H. (1973). *Human associative memory*. Washington, DC: Winston.

Bean, T. W., Singer, H., Sorter, J., & Frazee, C. (1986). The effect of metacognitive instruction in outlining and graphic organizer construction on students' comprehension in a tenth-grade world history class. *Journal of Reading Behavior*, 18(2), 153-169.

Berkowitz, S. (1986). Effects of instruction in text organization on sixth-grade students' memory for expository reading. *Reading Research Quarterly*, 21, 161-178.

Carrell, P.L. (1985). Facilitating ESL reading by teaching text structure. *TESOL Quarterly*, 19(4), 724-752.

Chang, K.E., Sung, Y.T., Chen, I.D. (2002) The effect of concept mapping to enhance text comprehension and summarization. *Journal of Experimental Education*, 71(1), 5–23.

Chiu, C. H., Hsu, Z. C., Wu, C. W., & Chuang, C. H. (2002). CoCoMap: Concept map online system. In Proceedings of 6th global Chinese conference on computers in education, China, 6, 61-67.

Fountas, I. C., Pinnell, G. S. (2001). *Guiding Readers and Writers: Grades 3-6 Teaching Comprehension, Genre, and Content Literacy*. Heinemann Publishing: Portsmouth.

Grabe, W. (2002). Narrative and expository macro-genres. In A. Johns (Ed.), *Genre in the classroom: Multiple perspectives* (pp. 249-267). Mahwah, NJ: Lawrence Erlbaum.

Horiba, Y. (2000). Reader control in reading: Effects of language competence, text type and task. *Discourse Processes*, 29(3), 223-267.

Lehman JD, Carter C, Kahle JB (1985) Concept mapping, Vee mapping, and achievement: results of a field study with black high school students. *Journal of Research in Science Teaching*, 22(7): 663-673

Leppanen, U., Aunola, K. & Nurmi, J. (2005). Beginning readers' reading performance and reading habits. *Journal of Research in Reading*, 28, 383-399

Liu, P., Chen, C., and Chang, Y. (2010). Effects of a computer-assisted concept mapping learning strategy on EFL college students' English reading comprehension. *Computers & Education*, 54, 436-445.

Jiang, X., Grabe, W. (2007).Graphic organizers in reading instruction: Research findings and issues. *Reading in a Foreign Language*, 19(1), 348-356.

Kintsch, W. (1994). Text comprehension, memory, and learning. *American Psychologist*, 49, 294–303.

Kintsch, W., & Van Dijk, T. A. (1978). Toward a model of text comprehension and production. *Psychological Review*, 85(5), 363-394.

Hao, Q., & Siu, F. L. C. (2012). Effects of Computerized Graphic Organizers on EFL Students' Expository Reading, presented at CITE Research Symposium, Hong Kong, 2012. Hong Kong, HK: CITERS, The University of Hong Kong.

Meyer, B. (1985). Prose analysis: Purpose, procedures and problems. In B. Britton & J. Black (Eds.), *Understanding expository text* (pp. 269-285). Hillsdale, NJ: Erlbaum.

Meyer, L.B.F. (2003). Text coherence and readability. *Topics in Language Disorders*, 23(3), 204-224.

Mohammadi, M., Moenikia, M., & Babelan, Z. A. (2010). The role of advance organizer on English language learning as a second language. *Procedia social and behavioral science*, 2, 4667-4671.

Mohan, B. A. (1986). *Language and content*. Reading, MA: Addison-Wesley.

Novak, J. D., Gowin, D. B., & Johansen, G. T. (1983). The use of concept mapping and knowledge mapping with junior high school science students. *Science Education*, 67(5), 625-645.

Oliver, K. M. (2009). An investigation of concept mapping to improve the reading comprehension of science texts. Journal of Science Education and Technology, 18(5), 402-414.

Oliver, K. M. (2008). A comparison of Web-based concept mapping tasks for alternative assessment in distance teacher education. *Journal of Computing in Teacher Education*, 24(3), 63-70.

Paivio, A. (1971). *Imagery and verbal processes*. New York: Holt, Rinehart, and Winston.

Pretorius, E. J. (2006).The comprehension of logical relations in expository texts by students who study through the medium of ESL. *System: An International Journal of Educational Technology and Applied Linguistics*, 34, 432-450.

RAND Reading Study Group. (2002). *Reading for understanding: Toward an R&D program in reading comprehension*. Santa Monica, CA: RAND.

Reader, W., & Hammond, N. (1994). Computer-based tools to support learning from hypertext: Concept mapping tools and beyond. *Computers and Education*, 12, 99-106.

Van Dijk, T.A., & Kintsch, W. (1983). *Strategies of discourse comprehension*. San Diego, CA: Academic Press.

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Appendix I

Questionnaire

Q1: Do you think thoroughly comprehending the text content is the premise of getting answers to reading-test questions right?

A. Never B. seldom C. sometimes D. often E. always

Q2: Suppose that your purpose for reading in English is to thoroughly comprehend text content, would you like to use some reading strategy to facilitate you reading (e.g., listing main ideas, taking notes) ?

A. Never B. seldom C. sometimes D. often E. always

Q3: If you would like to use reading strategy to facilitate your reading, which would you like to use?

A. To mark the key points in the original text

B. To draw Graphic Organizers (e.g., Concept Map, Graphic Organizer representing text structure)

C. Others (You can write down your own strategy below)

_____

Q4: Suppose that your purpose for reading in English is to thoroughly comprehend text content, do you think summary is an important strategy?

A. Never B. seldom C. sometimes D. often E. always

Q5: Which strategy of summarization do you think is better?

A. Summarize every paragraph when reading.

B. Summarize whole text after reading

C. Others (You can write down your own strategy below)

_____

Q6: Do you think it is more possible to put ideas in reading into application in your writing by using reading strategies taught in class?

A. Never B. seldom C. sometimes D. often E. always

Q7: Do you think it is more possible to put original text's structure in reading into application in your writing by using reading strategies taught in class?

A. Never B. seldom C. sometimes D. often E. always