USING CONCEPT MAPPING AND PARAPHRASING FOR READING COMPREHENSION

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ABSTRACT

This study investigated the comparative impact of two types of teaching techniques, namely concept mapping and paraphrasing, on the reading comprehension of EFL learners. For this purpose, 60 learners of a total number of 90 intermediate learners studying at a language school in Karaj, Iran, were chosen through taking a piloted PET for homogenization prior to the study. They were then randomly put into two experimental groups: 30 learners undergoing the concept map teaching, and 30 learners experiencing the paraphrasing teaching treatment. A piloted reading comprehension test was administered as the post-test of the study after each group was exposed to the treatment for 10 sessions in five weeks. The mean scores of the two groups on this post-test were computed through an independent samples of t-test to test the hypothesis raised in the study. The results showed that neither group outperformed the other significantly.

Keywords: Concept Mapping, Paraphrasing, Reading Comprehension.

INTRODUCTION

Reading is ofcourse a major concern to many EFL learners as it is one of the four skills that they need to acquire in their language learning process if they wish to be a fluent user of English. Considering the fact that a huge amount of learning occurs through reading, a desired level of learning may not be reached unless through enhancing one's reading comprehension skills (Yalcin & Sengel, 2004). Accordingly, reading is assumed as an important skill by learners themselves as pedagogically, they can learn new information, acquire explanations, and assess acquired information through reading (Celci-Murcia, 2001).

Teaching for reading comprehension is achieved through the instruction of various comprehension strategies, among which is spatial learning strategy, namely, concept mapping with its origin going back to the work of David Ausubel developed by Novak in the 1970s. The main advantage of this spatial strategy is its visual symbols for their ease of recognition by the learners (Cliburn, 1990; Jacobs-Lawsen & Hershey, 2002; Johnstone & Otis, 2006).

Concept mapping has been used for several decades in different sciences, as a way to show students the relationship between and among different scientific concepts. Novak's work is based on assimilation theories and the constructivist movement; these theories emphasize incorporating new information into previous ones (Novak & Gowin, 1999). As indicated in many studies by second language reading researchers, reading comprehension would be enhanced through activation of prior knowledge (Carrell, 1984; Carrel & Eisterhold, 1983; Clarke & Silberstein, 1979; Pritchard, 1990).

Concept maps also "develop creativity in learners; those constructing concept maps claim that they have found new meanings which they had not recognized before making" (Novak, 1998, p. 17). Concept maps are a good way for learning the text because it provides visual concepts in its graphic nature. "Many students or generally most people have problems in remembering and recalling the details but their ability to remember visual concepts is wonderful. This capacity of concept maps facilitates learning and recalling" (Novak, p. 28).

Concept mapping strategy is a spatial learning technique which can be used to improve comprehension. They can also be useful for teachers as a tool for assessment (Mintzes, Wandersee, & Novak, 2000). Teachers can use concept maps to recognize their students' prior knowledge and

understanding (Novak, 1998). They can also be useful in lesson planning, students' learning evaluation, and presenting difficult materials in a hierarchical and step-by-step manner. Students can benefit from concept mapping in taking notes which helps them maintain information in their minds and it helps students to recognize their weaknesses in their comprehensions (Novak).

Concept mapping can make comprehension less struggling for EFL learners. According to Trochim (1989), concept maps produce a graphic or pictorial product. When learners provide a diagram or a graphical representation of the text they read, they can remember the material more easily. To this end, previous research shows the effectiveness of reading strategy instruction on comprehension development (Harris & Graham, 1996). At the same time, many researches on concept mapping have proved that it can improve meaningful learning and help learners learn independently (Cliburn, 1990; Heinze-Fry & Novak, 1990; Kinchin, 2003; Mintzes et al., 2001; Novak, 1990; Novak, Gowin, & Johansen, 1983; Okebukola & Jegede, 1988).

Another reading strategy is RAP paraphrasing which is the abbreviated form of Read, Ask myself, and Put into one's own words (Schumaker, Denton, & Deshler, 1984). In paraphrasing, learners read a sentence and substitute the existing words with their own words and phrases (Munro, 2004). This is a kind of strategy that can be used both in spoken and written language (reading passages) which supports reading comprehension. According to Fisk and Hurst (2003), "In our efforts to help students better comprehend text, we have found paraphrasing for comprehension to be an excellent tool for reinforcing reading skills" (p. 182). They further argue that, "Paraphrasing is a powerful method that teachers can use to improve content understanding, learning and interest while developing reading content, communication and creative skill" (p. 182).

Paraphrasing is a strategy for comprehending reading which increases students' reading comprehension (Schumaker et al., 1984). In paraphrasing, learners should break a sentence or a paragraph into chunks. Breaking to smaller units makes understanding a difficult paragraph easier for them and helps them to remember the paragraphs better (Swanson, 1996).

For some teachers, reading comprehension involves only understanding the literal meaning and they evaluate their students' comprehension through oral or written questions; however, comprehension is beyond this definition as it needs more than understanding the literal meaning and requires the reader to interact with the text (Harvey & Goudvis, 2000). Comprehension is more than literal and word-by-word understanding and the reader also should interact with the text. Paraphrasing thus helps poor and word by word readers to comprehend the text in a correct way (Katims & Harris, 1997).

In line with what has been discussed so far, this study aimed at investigating the comparative impact of concept mapping and paraphrasing strategies on EFL learners' reading comprehension. To fulfill the purpose of this study, this null hypothesis was formulated:

H_0: There is no significant difference between the effect of concept mapping and paraphrasing on EFL learners' reading comprehension.

1. Method

1.1 Participants

The participants of the study were 60 EFL learners of a language school in Karaj, Iran, whose proficiency was controlled through a piloted sample PET having been selected from an intact sample of 90 candidates. Thus, those candidates with scores falling one standard deviation below and above the mean were chosen; their level of language proficiency was intermediate and their age range spanned from 14 to 18 years. All of the participants were girls and they were randomly assigned to two experimental groups of 30 in each. Another 30 EFL learners with almost the same characteristics as the learners took part in the piloting phase too. Furthermore, two raters rated the PET writings. Their inter-rater reliability had been established a priori. Out of the total 60 learners who under went the instruction, two learners did not sit for the post-test.

1.2 Instrumentation and Materials

A series of tests and materials were used by the researchers

in the course of this study. To begin with, a sample Preliminary English Test (PET) was used to homogenize the participants of the study.

As the course material, the researchers used nine short stories in both experimental groups: The Old Man and the Grandson, Carbon Monoxide, A Visit to Asia, Hollywood Stars and Tourists, Why the Sky Is Brown, Man Injured at Fast Food Place, Please Don't Hurt Me, Hotel Says Goodbye to Clean Couple, Wanted to Know How His Pig's Doing, and A Murder Suicide. The participants also used the Oxford Elementary Learners' Dictionary to look up the words they did not know.

After the treatment period, a reading comprehension test consisting of the following five texts A Florist in Delhi, A Day Like No Other, Just One Touch, Ana Finds an Apartment, and A Mystery followed by 25 multiple-choice items designed by the researchers was administered. The test was of course piloted beforehand The participants had 40 minutes to read the texts and answer the questions.

1.3 Procedure

As discussed above, once the two experimental groups were established, the treatment began. Each group consisted of three classes of 10 students. In one experimental group, the learners underwent concept mapping instruction and the other paraphrasing instruction. All classes were taught by the same teacher (one of the researchers).

In both experimental groups, the teacher presented the same series of short stories detailed in the instrumentation section. Both groups were allowed to use the Oxford Elementary Learner's Dictionary, if necessary. The course lasted 10 sessions, 60 minutes of each session being allocated to the treatment in both groups. The first session of the concept mapping group began with the teacher introducing concept maps and its benefits through explanations, showing a concept map, modeling a concept map for a topic, and making a concept map through group work in the class. The teacher then gave the learners an opportunity to practice concept mapping with a topic familiar to them: The Earth. She wrote down the word "earth" on the center of the board and circled it. The students were next asked to brainstorm and provide a list of

words relating to the earth with the help of the teacher who wrote down all the related words on the board outside the circle. Examples of these words were trees, plants, grass, rivers, sea, lakes, oceans, rain, etc.

Next, the teacher gave time to the students to think about the relationship of the outside items with the item in the center and asked them to provide their own concept maps. The teacher told them to relocate the important items which were more related to each other more closely for better organization. She asked them to use color pencils for more illustrious categorizations and also being able to revise erase whatever they wanted.

While students were creating their concept maps, the teacher observed their activity individually and helped them with the vocabularies, if necessary. At this step, they added other key words and ideas in addition to those written on the board. Subsequently, they connected the related concepts to each other as the teacher's model and instruction. After they finished the activity, they shared their maps with their classmates and the teacher. In order to make sure about the students' ability to produce concept maps, the researcher wrote a phrase on the board and asked them to produce a concept map individually without the teacher's help. The phrase was "modern cars". This was helpful for learners in learning new vocabularies through their classmates.

At the end of this introductory session, the teacher gave the learners one of the nine short stories titled The Old Man and the Grandson and asked the participants to produce a concept map for this story in the next session and bring it to class. The participants then came to class the second session and read the story again, but this time with the help of the teacher. She explained the more difficult parts for them. They discussed the story together and wrote some key concepts on the board and some of the related concepts together. Then they shared their maps with their classmates. At the end, the teacher told them to add other concepts to their maps which they had missed.

At the beginning of every session, the teacher provided some recalling explanations about concept mapping and its procedure. This process was repeated for the rest of the short stories throughout the treatment phase in the concept

mapping group. On the first session of instruction in the paraphrasing group, the teacher introduced paraphrasing, its benefits, and its procedures. She modeled paraphrasing and cued students' activities and chose some sentences and paragraphs reading them twice aloud. First, they read the sentences silently. For the second time, they read it aloud with the teacher. Then, she paraphrased the sentence to model paraphrasing and asked the students to say it in their own words (they could use dictionaries to find synonyms).

The teacher modeled some examples and asked them to say the sentences in their own words after some minutes to be sure about their learning. When they practiced five sentences, the researcher reviewed the action. They read the original sentences together and then said it in another way. Again, they practiced new sentences and paragraphs together like the previous ones. The teacher asked the learners to paraphrase some given sentences individually, when she felt that they had enough confidence. She provided them a number of sentences and asked them to think in another way and write down their thoughts. She drew their attention to not using words that are in the written sentences and told them that they could use the Oxford Elementary Learners' Dictionary if necessary. The students read their sentences for the class. Through this activity, they could learn some new synonyms from their classmates in addition to their own ones.

The teacher also introduced the RAP procedure (described earlier) by asking the learners to use this acronym in order to remember the steps of paraphrasing. These were the activities which were done in one session. At the end of the first session, the teacher gave the participants the same story which was given to the concept mapping group on the first session and asked them to paraphrase it sentence by sentence for the next session. She told them to draw a table and write each sentence in one row and its paraphrase in front of it.

The teacher gave the learners one passage for every session in the same order of the other group and the participants were supposed to study the story at home and were told to paraphrase the paragraphs. In the class, they read the story again but this time with the help of the teacher. She explained the more difficult parts for them. They discussed the story together and they then paraphrased the paragraphs together but this time with the researcher.

After finishing the paraphrasing, they shared their paraphrases with other classmates. Reading their paraphrases for the class helped them to be familiar with new vocabularies and synonyms. This procedure was repeated for the rest of the short stories. At the beginning of every session, the teacher provided some recalling explanations about paraphrasing and its procedure. After finishing all the nine short stories which took nine sessions, the teacher administered the reading post-test on the 11th session to both groups.

2. Results

2.1 Participant Selection

To select the participants required in this study, the researchers used a sample PET. Prior to the actual administration, the test was piloted to make sure that it could be used confidently for this screening. The reliability of the test scores (estimated through the KR-21 procedure) gained by the participants on the pilot PET was 0.82.

Next, the piloted PET together with the writing section was administered for participant selection. Table 1 shows the descriptive statistics of this administration with the Mean being 37.16 and the Standard Deviation being 7.92, respectively.

As two raters were involved in the scoring of the writing section of the PET, their consistency of scoring or inter-rater reliability had to be checked; the results showed the significant correlation of the two sets of scores given by both raters to the writing papers.

Among the 90 students who took the PET, the researchers selected 60 who scored between one Standard Deviation above and below the Mean. As the students in the language school came from intact groups and the researchers did not have the luxury of random sampling,

	N	Minimum	Maximum	Mean	Std. Deviation
PET Administration	90	19	53	37.16	7.918
Valid N (listwise)	90				

Table 1. Descriptive Statistics of the PET Administration

they had to make sure that the 30 learners in each of the two experimental groups, both had no significant difference in terms of the dependent variable of this study (reading skill) prior to the treatment. To this end, they checked whether the mean scores of the two groups on the reading section of the PET administered earlier both had any significant difference or not. First, however, the descriptive statistics of the scores obtained by these 60 learners on the PET reading section are presented (Table 2). As is shown, the Mean and Standard Deviation of Group 1 found to be 16.83 and 2.95, respectively, while 17.47 and 3.01, respectively, for Group 2.

Table 2 gives the skewness ratios of both groups (-0.99 and 0.60) fell within the acceptable range of ±1.96 thus signifying that the score distributions in both groups represented normality. Therefore, running an independent samples t-rest was legitimized. As Table 3 indicates, with the F value of 0.170 at the significance level of 0.681 being larger than 0.05, the variances of the two groups were not significantly different. Therefore, the results of the t-test with the assumption of homogeneity of the variances were reported.

The results (t = -0.823, p = 0.414 > 0.05) indicate that there was no significant difference between the mean scores of the two groups at the outset; consequently, any probable differences at the end of the treatment could be attributed to the effect of the treatment.

2.2 Post-test

Prior to the actual administration of the post-test, the

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness
	Statistic	Statistic	Statistic	Statistic	Statistic	
Group 1	30	10	22	16.83	2.949	-.99
Group 2	30	13	24	17.47	3.014	-.60
Valid N (listwise)	30					

Table 2. Descriptive Statistics of the Reading Scores of the Two Groups on the PET Administration

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness
	Statistic	Statistic	Statistic	Statistic	Statistic	
Group 1 (CM)	30	13	19	15.77	1.547	.56
Group 2 (Par)	28	14	18	16.00	1.333	-.24
Valid N (listwise)	28					

Table 4. Descriptive Statistics for the Post-test in Both Groups

researchers piloted it among 30 students with very similar characteristics to the 60 participants of this study. The reliability of the test was calculated to be 0.83 (KR-21).

The researchers administered the posttest to both groups in one setting. Table 4 displays the descriptive statistics of this administration with the Mean being 15.77 and the Standard Deviation 1.55 in the concept mapping group and 16.00 and 1.33, respectively, in the paraphrase group.

As Table 4 reveals, the difference between the two groups' means is negligible. However, further statistical analysis was required to see whether this difference was significant or not.

2.3 Testing the Hypothesis

To verify the null hypothesis of the study, the researchers conducted an independent samples t-test. With the skewness ratios of both groups falling within the acceptable range of ±1.96, running a t-rest was legitimized. As Table 5 indicates, with the F value of 0.665 at the significance level of 0.418 being larger than 0.05, the variances of the two groups were not significantly different. Therefore, the results of the t-test with the assumption of homogeneity of the variances were reported. The results (t = -0.613, p = 0.542 > 0.05) indicate that there was no significant difference between the mean scores of the two groups at the posttest. It can thus be concluded that the presupposed null hypothesis was not rejected, meaning that concept mapping and paraphrasing bore no significantly different impact on the reading comprehension of the participants in this study.

	Levene's Test		t-test for Equality of Means					95% Confidence Interval of the Difference	
	F	Sig.	t	Df	Sig.	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	.170	.681	.823	58	.414	.633	.770	2.174	.908
Equal variances not assumed			.823	57.98	.414	.633	.770	2.174	.908

Table 3. Independent Samples t-Test of the Mean Scores of Both Groups in Their Reading Prior to the Treatment

	Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
	F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	.665	.418	-.613	56	.542	-.233	.380	-.995	.529
Equal variances not assumed			-.617	55.6	.540	-.233	.378	-.992	.525

Table 5. Independent Samples t-Test on the Mean Scores of Both Experimental Groups

3. Discussion and Conclusion

The learners in both concept mapping and paraphrasing groups were active in the classes; they were sharing their ideas and discussing with each other and exchanging their works: maps and paraphrases. The learners in the paraphrasing group stated that they could guess the meaning of the words more easily and understand the text more efficiently.

Also, in the concept mapping group, learners were saying that through these maps they were able to understand the text more easily. These were evident from their work. During the procedure, all the learners were eager to receive new texts to work on them individually and then together in the class. The results of the study show that these two reading strategies (concept mapping and paraphrasing) help readers in improving the purpose of reading comprehension.

Based on the findings of this study, concept mapping and paraphrasing as two reading comprehension strategies should be emphasized in teachers' work as effective factors developing reading comprehension. Besides teachers, there are other factors which affect the learning process significantly; syllabus designers and materials developers also play an important role in this regard. They provide teaching materials which contain proper contents to language learners, design exercises and deploy reading strategies to achieve their goal which is reading comprehension.

Handbooks should be provided for teachers which contain guidelines for efficient teaching through strategies. This will lead teachers to teach effectively and learners to be more independent in the language learning process.

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