

SGP Triangle and Reading Comprehension: The Case of EFL Learners

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Abstract:

To investigate the influence of “summary” as an advance organizer on reading comprehension ability of Iranian EFL learners, eighty four junior high school students were selected via cluster random sampling as the participants of the study. Having gone through a quasi-experimental research design and the statistical analysis procedures the study yielded the following results: (a) the use of summary as an advance organizer had a highly advantageous influence on reading comprehension ability of Iranian EFL learners, (b) gender was an interacting factor as the male participants outperformed their female counterparts, and (c) proficiency level of the students was an influential element as the lowly proficient students attained better results and revealed a further benefit for being exposed to summary as an advance organizer compared with the highly proficient students.

Key Words: *advance organizers, SGP (summary/gender/proficiency level), meaningful learning, reading comprehension, and EFL learners*

1. Introduction

Although reading comprehension skills have got primary interest among scholars and appreciable improvements have come to be noticed in the realm of ELT resulted from the advancements in teaching methodologies, (see Richards & Rodgers, 2001; Cook, 2001; Celce-Morcía, 2001), it is not that pleasing to admit, that many EFL learners still suffer from reading comprehension difficulties. The difficulty of comprehending foreign language texts has been dealt with based on different theories of reading by different scholars. The fact that a sense of prior knowledge is of crucial significance for the comprehension of a text is widely noticeable in the literature on reading (Adams & Collins, 1979; Ausubel, 1968; Bransford & Johnson, 1972; Anderson, et.al., 1977).

David Ausubel (1960) described “advance organizers” as a cognitive strategy to help students learn and retain information. In the same vein, Chastain (1988) defined them as a solution to the students’ comprehension problems. He claimed that “by providing related pre-study information in the form of advance organizers teachers can fill any anticipated or observed gaps between the students’ knowledge and the content of classroom materials” (p. 46). It has been pointed that the incomprehensibility of the new material might not necessarily be due to its nature, rather the learner may not have a sufficient background to understand it, or because they have not activated the relevant “schemata”. Nunan (2001, P. 201), elaborated on schemata as “being based on the notion that past experiences lead to the creation of mental frameworks that help us make sense of new experiences”. These already extant schemata, revealed to be formerly stabilized information, are also used in Ausubel’s (1963) concept of “meaningful learning”, when the newly entering information are attached to them so as to have a better retention and retrieval.

It is crucial that high school students in Iran be empowered with an instrumental strategy to make an understanding of the different readings that they encounter in their future challenges. Several instructional strategies have been found to be effective in improving reading comprehension. For example, there is evidence in support of the effectiveness of prediction, concept mapping, questions/questioning, and summarization (National Institute of Child Health and Human Development, 2000; Rosenshine, Meister, & Chapman, 1996). Thus, this study seeks to investigate the role of summarization as one of the most powerful techniques for improving reading comprehension ability of EFL learners.

Prompted by the theoretical and methodological problems in this particular context, this paper is going to discover how advance organizers, gender, and proficiency level come into interaction to affect reading comprehension ability of EFL learners. Thus, the following general questions can be raised:

1. Does reading the summary of English passages before reading the passages enhance the reading comprehension ability of EFL learners?
2. Is reading comprehension ability of EFL learners significantly influenced by their gender?
3. Does proficiency level significantly influence reading comprehension ability of EFL learners?

2. Method

2.1 Participants

The participants were 84 junior high school students (17-18 years) studying in four intact classes in two high schools in Ahvaz (one of Iran's metropolis) which divided into two groups of male and female, each group containing 42 students. Male students were divided into the experimental group (N=28) and the control group (N=14). The experimental group were further divided into two equal halves of high and low proficiency groups (N=14). The same classifications were done for the female participants.

2.2 Instrument

Two sets of twelve multiple-choice questions were prepared based on the readings for pre and post-tests in all groups as the instrument. Both readings and the questions were given to eight TEFL professionals including two professors with Ph.D. degree and six M.A. professionals for validation purpose.

2.3 Procedure

Adopting a multi-stage cluster sampling, four classes of students (two male and two female) were selected to be considered one (in each gender) as the control group and the other as the experimental group with the presupposition of being in a similar level of language proficiency as they were both in the same grade (junior high school), in the same school, teaching by the same teacher, and under equal educational system. Then pre-test and post-test were administered for both female and male groups. All scores obtained from pre and post-tests were analyzed via SPSS. T-test, One-Way ANOVA, and MANOVA were used to analyze the scores. These abbreviations would be used throughout the study:

MNS: Males receiving no Summary

MS: Male Summary readers

FNS: Females receiving no Summary

FS: Female Summary readers

H: High

L: Low

3. Data Analysis

3.1 Pre-test

A set of twelve multiple-choice questions (1 point each) was prepared based on the first reading material to evaluate all participants' reading comprehension ability before the pedagogical intervention.

Table: 1

Descriptive Statistics for the Participants' Performance on the Pretest

Group	Mean	N	Min	Max	Std. Deviation
MNS	4.71	14	2	8	1.590
FNS	4.50	14	3	8	1.345
HMS	7.29	14	5	10	1.204
LMS	4.00	14	2	6	1.301
HFS	5.79	14	4	11	1.888
LFS	2.43	14	2	4	.646
Total	4.79	84			2.018

After the randomization process and bringing homogeneity to the students' obtained scores from the pretest, it was naturally expected that the means of the different groups would not vary significantly. The pretest mean scores of the experimental groups and that of the control groups were compared with each other using One-Way ANOVA to see if they were significantly different. This method was found to be the most effective because all means were compared and that the samples under comparison were interval and normally distributed.

Table: 2**Comparison of the Pretest Mean Scores Using One-Way ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.339	1	1.339	.326	.570Ns
Within Groups	336.804	82	4.107		
Total	338.143	83			

^{Ns} Not significant at the 0.05 level ($p > 0.05$)

3.2 Post-test

The post-test served to measure the effects of the pedagogical intervention (using summary as an advance organizer) on the students' reading ability. A similar set of twelve multiple-choice questions used for the pretest was used for the posttest this time for the second reading material.

Table: 3**Descriptive statistics for the participants' performance on the posttest**

Group	Mean	N	Minimum	Maximum	Std. Deviation
MNS	5.14	14	2	8	1.460
FNS	4.79	14	2	7	1.311
HMS	9.79	14	3	12	2.392
LMS	9.29	14	6	12	1.899
HFS	8.21	14	4	12	2.359
LFS	7.36	14	4	12	2.620
Total	7.43	84			2.00

4. Findings

4.1 Research Question 1:

To investigate the significant difference of the posttest means of the different groups with more precision and per group, the performances of the four experimental groups on the pretest and posttest were compared using paired-sample t-test. The average mean score of the four experimental groups on the posttest was 4.54 higher than that on the pretest. As for specific groups, all of the four groups improved on the posttest. Among them, the LMS group improved the most (from 9.29 to 4.00) by 5.29 points, followed by the LFS group which improved 4.93 points (from 7.36 to 2.43), followed by the HMS group which improved 2.50 points (from 9.79 to 7.29), followed by the HFS group which improved 2.42 points (from 8.21 to 5.79).

Table: 4

The Performance of the Four Experimental Groups on the Pretest and Posttest

Group	Tests	Mean	Std. Deviation
HMS	pretest	7.29	1.204
	posttest	9.79	2.392
LMS	pretest	4.00	1.301
	posttest	9.29	1.899
HFS	pretest	5.79	1.888
	posttest	8.21	2.359
LFS	pretest	2.43	.646
	posttest	7.36	2.620
Average	pretest	4.87	1.259
	posttest	9.41	2.317

The performance of the two control groups in Table 5 shows as for the control groups, statistically speaking, the MNS group improved by 0.43 points, followed by the FNS group which improved 0.29 points. With regard to the improvement of each group, paired-sample t-tests were used to perform the comparison of the pretest and posttest, i.e., to verify the potential effects of the pedagogical intervention on all the EFL learners. This statistical analysis was appropriate because it compared the means of two variables - the pretest and posttest - for each group.

Table: 5

The Performance of the Two Control Groups on the Pretest and Posttest

Group	Tests	Mean	Std. Deviation
MNS	pretest	4.71	1.590
	posttest	5.14	1.460
FNS	pretest	4.50	1.345
	posttest	4.79	1.311
Average	pretest	4.60	1.467
	posttest	4.96	1.385

Results of paired-sample t-tests (Table 6) indicates that all four experimental groups receiving summary as the treatment had a highly significant improvement on the posttest. For the HMS group, the difference of the two means (-2.500) was from 9.79 to 7.29. For the LMS group, the mean difference (-5.286) was from 9.29 to 4.00. The difference (-2.429) for the HFS group was from 8.21 to 5.79, while for the LFS group, the mean difference (-4.929) was from 7.36 to 2.43.

Table: 6**Comparison of the Groups' Performance on the Mean Difference**

Group	Mean Difference	Std. Deviation	t	df	Sig. (2-tailed)
MNS	-.429	1.742	-.921	13	.374 ^{Ns}
FNS	-.286	1.204	-.888	13	.391 ^{Ns}
HMS	-2.500	2.902	-3.223	13	.007*
LMS	-5.286	2.494	-7.930	13	.000**
HFS	-2.429	2.174	-4.180	13	.001*
LFS	-4.929	2.433	-7.581	13	.000**

* Significant at the 0.01 level ($p < 0.01$)

** Significant at the 0.001 level ($p < 0.001$)

^{Ns} Not significant at the 0.05 level ($p > 0.05$)

4.2 Research Question 2:

The study employed the descriptive statistics and GLM Multivariate Analysis of Variance (MANOVA) test to answer second question. Table 7 gives an overview for the pre and post-test performance of male and female participants.

Table: 7

Descriptive Statistics for Participants' Performance in Terms of Gender

Gender	Test	Treatment	Mean	Std. Deviation
Male (N=42)	pretest	summary	5.64	2.077
		no summary	4.71	1.590
	posttest	summary	9.54	2.134
		no summary	5.14	1.460
Female (N=42)	pretest	summary	4.11	2.200
		no summary	4.50	1.345
	posttest	summary	7.79	2.485
		no summary	4.79	1.311

Then, MANOVA was conducted to verify the possible effect of gender on EFL students' reading comprehension. Table 8 indicates a significant effect of the gender variable on the students' reading comprehension ability on their post-test ($F_{(1, 82)} = 4.71, p=0.03$). Results shows a significant influence of the gender in the pre-test as well, ($F_{(1, 82)} = 6.60, p=0.01$), this level of significant difference has changed over posttest scores of the two genders. That is, a p value of 0.01 which is an indication of a greater difference between the two genders in their pre-test, has been increased to 0.03 thus yielding a smaller difference between the two genders in the post test. To put it another way, the closer the p value to the previously established alpha level ($p<0.05$), the lesser the significant difference between the two genders and the nearer the two genders to each other.

Table: 8**Test of Between-Subjects Effects in Terms of Gender**

Source	Dependent Variables	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	pretest	25.190a	1	25.190	6.600	.012
	posttest	34.714b	1	34.714	4.714	.033
Intercept	pretest	347.143	1	347.143	90.959	.000
	posttest	735.471	1	735.471	99.872	.000
gender	pretest	25.190	1	25.190	6.600	.012*
	posttest	34.714	1	34.714	4.714	.033*
Error	pretest	312.952	82	3.816		
	posttest	603.857	82	7.364		
Total	pretest	2262.000	84			
	posttest	5274.000	84			
Corrected Total	pretest	338.143	83			
	posttest	638.571	83			

* Significant at the 0.05 level ($p < 0.05$)

To obtain a lucid and tangible examination of the existing difference between the two genders, the study sought to get assistance from paired-sample t-test to compare each gender's pre and post-test means to reveal their individual improvements. Results of paired-sample t test as shown in Table 9 indicates that both male and female improved significantly $p=0.000$, implying a similar significant effect of the two genders at $p < 0.001$.

Table: 9**Comparison of the Two Genders on the Mean Difference**

Gender	Mean Difference	Std. Deviation	t	df	Sig. (2-tailed)
Male	-3.893	3.010	-6.843	27	.000*
Female	-3.679	2.597	-7.495	27	.000*

* Significant at the 0.001 level ($p < 0.001$)

Paired-sample t-test further revealed that since the mean difference of the pre and post-tests of male students was greater (-3.893) than that of the female students (-3.679), it could be concluded that male students outperformed their counterpart female students in utilizing the treatment summary as the advance organizer over their post-tests.

4.3 Research Question 3:

Descriptive statistics (Table 10) of the two levels of proficiency were provided for individual genders followed by a MANOVA test to investigate the overall effect of proficiency level as the covariate on the reading comprehension ability of EFL learners. Having had established a significant influence of the level of proficiency by MANOVA, a paired-sample t-test was finally employed to put under close scrutiny how exactly the proficiency level significantly influenced the reading comprehension ability of EFL learners.

Table: 10**Descriptive Statistics for Participants' Performance in Terms of Proficiency**

Gender	Test	Proficiency level	Mean	Std. Deviation
Male (N=28)	pretest	High	7.29	1.204
		Low	4.00	1.301

	posttest	High	9.79	2.392
		Low	9.29	1.899
Female (N=28)	pretest	High	5.79	1.888
		Low	2.43	.646
	posttest	High	8.21	2.359
		Low	7.36	2.620

MANOVA test conducted to examine the general influence of the proficiency level as a covariate factor on the reading comprehension ability of EFL learners.

Table: 11

Test of Between-Subjects Effects in Terms of Proficiency Level

Source	Dependent Variables	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	pretest	154.446 ^a	1	154.446	66.361	.000
	posttest	6.446 ^b	1	6.446	1.067	.306
Intercept	pretest	544.114	1	544.114	233.788	.000
	posttest	524.579	1	524.579	86.865	.000
proficiency	pretest	154.446	1	154.446	66.361	.000*
	posttest	6.446	1	6.446	1.067	.306 ^{Ns}
Error	pretest	125.679	54	2.327		
	posttest	326.107	54	6.039		
Total	pretest	1611.000	56			

	posttest	4533.000	56			
Corrected Total	pretest	280.125	55			
	posttest	332.554	55			

* Significant at the 0.001 level ($p < 0.001$)

^{Ns} Not significant at the 0.05 level ($p > 0.05$)

Table 11 indicates that a significant effect of the proficiency level existed on the students' reading comprehension ability on their pre-test ($F_{(1, 54)} = 66.36, p = 0.00$). That is, different groups with different high and low proficiency levels existed in the pre-test. As it is apparent from the post-test result of the proficiency factor also available on table 11, there did not exist a significant influence of the proficiency level on the students' reading comprehension ($F_{(1, 54)} = 1.06, p = .30$), meaning that the means of the two levels in the post test must have come close enough to each other so as to eliminate the previously significant difference in the pre-test. Logically concluding, the researcher made a presupposition that the lower proficiency level students must have gained some improvements in a way that there seemed to be slighter remoteness between the two levels. Once again as the previous research question, the researcher utilized paired-sample t-test to get a comprehensive examination of the extent to which the proficiency level affected the reading comprehension.

Table: 12

Participants' Performance in Terms of Proficiency Level

Gender	Proficiency Level	Mean Difference	Std. Deviation	t	df	Sig. (2-tailed)
Male (N=28)	high	-2.500	2.902	-3.223	13	.007*
	low	-5.286	2.494	-7.930	13	.000**
Female (N=28)	high	-2.429	2.174	-4.180	13	.001*
	low	-4.929	2.433	-7.581	13	.000**

* Significant at the 0.01 level ($p < 0.01$)

** Significant at the 0.001 level ($p < 0.001$)

Having put the table 12 into consideration, it was indicated that the students with low levels of proficiency did better than their counterpart high levels. Lowly proficient male students were the most highly influenced as they had the largest mean difference of -5.286, followed by the lowly proficient female students with a mean difference of -4.929. Of course highly proficient male students with a mean difference of -2.500 pursued by highly proficient female students with a mean difference of -2.429 had also achieved some improvements regarding the use of summary as the advance organizer, though to a lesser extent compared with the highly proficient students. After all, it was concluded that proficiency level did have a significant influence on reading comprehension as the lower level students outperformed their fellow high level ones thus rejecting the formerly proposed null hypothesis as “the level of proficiency has no influence on reading comprehension ability of EFL learners”.

5. Discussion and Conclusion

The results of this study indicated that the use of summary as an advance organizer significantly enhanced the reading comprehension ability of Iranian EFL learners. This general influence of summary was confirmed to be highly significant in improving the reading comprehension ability of the four experimental groups of the study using statistical analyses and technical procedures while maintaining the two control groups constant over the two administrations of the tests due to receiving no summary as the treatment. This part of the findings of the current study was generally in line with the results of the prior researches of (Schwartz et al. 1998; Cannon-Bowers et al., 1998; Chung & Huang 1998; Huang, Cheng & Chern, 2006; Lin & Chen, 2006; Surber & Schroeder, 2007; Githua & Nyabwa, 2008; Shihusa & Keraro, 2009; Mesmer-Magnus & Viswesvaran, 2010; Mohammadi, Moenikia, & Zahed-Babelan, 2010) as they have all pointed out to and approved of the facilitative effect of the advance organizers. Also, Carrell, (1983); Rumelhart, (1982); Shen, (2008); Alemi & Ebadi, (2010) have yielded similar results for the supportive nature of pre-reading activities.

Having considered the gender difference as a sub-line of the present investigation, this study came to the conclusion that although both male and female students benefited from being

exposed to summary in advance, male students outperformed their female counterparts as they had gained a further improvement compared with female students. The issue of the gender interaction with regard to the performance of the participants in different studies was in concordance with Bernhardt's (1991) conclusion that background knowledge by itself does not predict comprehension. It has further been a concern of some previously conducted studies as they have struggled to find the logics of the gender difference in different studies. For Motallebzadeh, (1993), for example, the "topic of a text" was an important factor in explaining gender-based differences in second language reading comprehension. It was the "passage content" or "topic familiarity" and the "type of assessment" accounting for the findings of the studies of Brantmeier, (2004; 2006) at the intermediate levels of Spanish language instruction. These research studies confirmed that males and females may perform differently when reading specific gender-oriented passages. Two recent studies of Pae, (2004); Yazdanpanah, (2007) suggested "item differences" such as identifying main idea, guessing meaning from context, reading for specific information, identifying referential information, etc as the interacting factor that might bring about inconsistent results, concerning the gender differences.

This section of the results of the current thesis, entailing the superiority of the male students' performance over the female ones despite their identical educational system, teachers, facilities, materials and treatment, revealed more consistency for the findings of Motallebzadeh, (1993) and Brantmeier, (2006). There might be two reasons behind the consistency of the present study with the findings of these studies. First, the "type of assessment", identified earlier as an interacting factor which can impose alteration on the gender superiority in terms of their performance, in this thesis was the same as that of the above mentioned studies, i.e. "multiple-choice test". Second, out of the two reading materials chosen as the corpus of this study, the second reading, which was used as the posttest reading material, appeared to be to some extent gender-oriented as it was about "exercising" and possessed a topic somehow more approving and favorable to the male students rather than the female students thus a male-oriented passage.

As the last research question of this study, the effect of proficiency level was also perceived to be significant. To be precise, in the meantime that both high and low levels of proficiency attained better results in the posttest, lowly proficient students revealed to be benefited more from the

treatment compared with their counterpart highly proficient students as they had acquired better scores on the post test.

Following Carrell's (1991) argument that L2 language proficiency seemed to be more important for EFL students while L1 reading ability was more important for ESL students and the coincidence of her conclusion with Alderson's (1984) inclination towards L2 reading being a language problem for low-level L2 proficiency, here seemed to be a general agreement on the supremacy of the lowly proficient students over the highly proficient ones in terms of the advantages they got from the pre-reading activities between this study and the studies of Ausubel and Fitzgerald, (1962); Graves & Palmer, (1981); Tudor, (1990); and Chung and Huang, (1998).

References

- Adams, M. J., & Collins, A. (1979). A schema theoretic view of reading. In R. O. Freedle (Ed.), *New Directions in Discourse Processing*. (pp.1-22). Norwood, NJ: Ablex.
- Alemi, M., & Ebadi, S. (2010). The Effects of Pre-reading Activities on ESP Reading Comprehension. *Journal of Language Teaching and Research*, 1(5), 569-577.
- Anderson, R. C. et al. (1997). The Notion of Schemata and Educational Enterprise: general discussion of the conference. In R. J. Spiro, et al. (Eds.), *Theoretical issues in reading comprehension*, Lawrence Erlbaum Associates. New Jersey.
- Ausubel, D. (1960). The use of advance organizers in the learning and retention of meaningful verbal material. *Journal of Educational Psychology*, 51, 267-272.
- Ausubel, D. (1963). *The psychology of meaningful verbal learning*. New York, NY: Grune & Stratton.
- Ausubel, D. (1968). *Educational Psychology: A Cognitive View*. New York: Holt, Rinehart & Winston.
- Bernhardt, E. B. (1991). *Reading development in a second language: Theoretical, research and classroom perspectives*. Norwood, N.J.: Ablex.

- Bransford, J. D., & Johnson, M. K. (1972). Contextual Prerequisites for Understanding: Some investigations of comprehension and recall. *Journal of Verbal Learning and Verbal Behavior*, 11, 717–726.
- Brantmeier, C. (2004). Gender, Violence-Oriented Passage Content and Second Language Reading Comprehension. *The Reading Matrix: An International Online Journal*, 4 (2), 1-19.
- Brantmeier, C. (2006). Readers' gender and test method effect in second language reading. *Forum on Public Policy: A Journal of the Oxford Round Table*, University of Oxford. UK: 1-36.
- Cannon-Bowers J. A., et al. (1998). A Framework for Understanding Pre-practice Conditions and Their Impact on Learning. *Personnel Psychology*, 51, 291-320.
- Carrell, P. L. (1983). Some issues in Studying the Role of Schemata, or Background Knowledge in Second Language Comprehension. *Reading in foreign Language*, 1 (2), 81-92.
- Celce-Morcía, M. (Ed.), (2001). *Teaching English as a second or foreign language*. Boston: Heinle & Heinle.
- Chastain, K. (1988). *Developing second language skills: Theory and Practice*. Orlando: Harcourt Brace Jovanovich.
- Chung, J. M., & Huang, S. C. (1998). The effects of three aural advance organizers for video viewing in a foreign language classroom. *System* 26, 553-565.
- Cook, V. (2001). *Second language learning and teaching*. London: Arnold Publishers.
- Githua, B., & Nyabwa, R. A. (2008). Effects of advance organizer strategy during instruction on secondary school students' mathematics achievement in Kenya's Nakuru district. *International Journal of Science and Mathematics Education*, 6, 439-457.
- Huang, S. C., Cheng, Y. S. & Chern, C. L. (2006). Pre-reading materials from subject matter texts: Learner choices and the underlying learner characteristics. *Journal of English for Academic Purposes*, 5, 193–206

- Lin, H., & Chen, T. (2006). Decreasing cognitive load for novice EFL learners: Effects of question and descriptive advance organizers in facilitating EFL learners' comprehension of an animation-based content lesson. *System* 34, 416-431.
- Mesmer-Magnus, J., & Viswesvaran, C. (2010). The role of pre-training interventions in learning: A meta-analysis and integrative review. *Human Resource Management Review*, 20 (4), 261-282.
- Mohammadi, M., Moenikia, M., & Zahed-Babelan, A. (2010). The role of advance organizer on English language learning as a second language. *Procedia Social and Behavioral Sciences*, 2, 4667-1671.
- Motallebzadeh, K. (1993). On the Interrelationship between DP/IN Tests of Language Proficiency and Learners Sex. *Roshd Foreign Language Teaching Journal*, 28 (4), 86-92.
- National Institute of Child Health and Human Development. (2000). Report of the National Reading Panel: *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*. Washington, DC: Government Printing Office.
- Nunan, D. (2001). *Second language teaching and learning*. Boston: Heinle & Heinle publishers.
- Pae, T. I. (2004). Gender effect on reading comprehension with Korean EFL learners. *System*, 32, 265-281.
- Richards, J. C., & Rodgers, T. S. (2001). *Approaches and Methods in Language Teaching* (2nded.). Cambridge: Cambridge University Press.
- Rosenshine, B., Meister, C., & Chapman, S. (1996). Teaching students to generate questions: A review of the intervention studies. *Review of Educational Research*, 66, 181-221.
- Rumelhart, D. E. (1982). Schemata: The building blocks of cognition. In J. T. Guthrie (Ed.), *Comprehension and teaching: Research reviews* (pp.3-36). Newark, Delaware: International Reading Association.
- Schwartz, N. H., et al. (1998). Accessing Prior Knowledge to Remember Text: A Comparison of Advance Organizers and Maps. *Contemporary Educational Psychology*, 23, 65-89.

- Shen, Y. (2008). An Exploration of Schema Theory in Intensive Reading. *English Language Teaching, 1* (2), 104-107.
- Shihusa, H., & Keraro, F. N. (2009). Using Advance Organizers to Enhance Students' Motivation in Learning Biology. *Eurasia Journal of Mathematics, Science & Technology Education, 5* (4), 413-420
- Surber, J. R., & Schroeder, M. (2007). Effect of prior domain knowledge and headings on processing of informative text. *Contemporary Educational Psychology 32*, 485–498.
- Yazdanpanah, K. (2007). The Effect of Background Knowledge and Reading Comprehension Test Items on Male and Female Performance. *The Reading Matrix, 7* (2), 64-80.