

The Effect of SQ3R and Semantic Mapping Strategies on Reading Comprehension Learning among Jordanian University Students

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***Abstract:** The purpose of this article is to investigate the Effect of SQ3R and semantic mapping Strategies on reading comprehension Learning among Jordanian University Students. The participants of this research consists of two classes of English Course , Level one with 60 students, 30 in the control group and 30 in the experimental group. The students were belong to Faculty of Arts and Educational Sciences ,Department of English Language and Literature .All students were considered as low proficiency in English language due to their scores obtained in the English language placement test conducted by the university at the beginning of each academic year ; the age range of the participants was between 18 and 35. To answer the questions of the study, An achievement reading comprehension test is used as a pre-test and a post-test to both: the experimental and the control group with some modification related to the ways each group is taught accordingly. A multiple-choice reading comprehension test of twenty questions is constructed to assess the students` comprehension of the reading text . Proper statistical analyses were used to analyze the results. The results of the study showed that semantic mapping and SQ3R strategies group performed better than the control group in the post test(comprehension test) since the mean score obtained by experimental group (.58) is higher than the mean score obtained by control group (.50).*

Introduction

Language is the centre of human life and it is one of the most important ways of expressing ourselves, communicating with people, planning our lives, and exchanging ideas (Cook, 1996). Jordanian Ministry of Education (2006:9) stated

"English is an international language and fundamental to learning and communicating in all cultures with the increasing amount of information and communication technology... Through learning English, the students will be able to develop confidence, competence and self reliance to meet the demands of development and further education".

English language as any language consists of four skills, listening, reading, speaking and writing. The reading skill is increasingly seen as one of the most important skills. It determines both performance in other subject areas, such as science and the humanities, at the primary stage and also academic achievement at a much later stage. Reading is a receptive skill through which the learners understand the vocabulary, grammar and sentence structure. Snow (2002) mentions that learning to read well is a long –term development process. He also stated that the proficient adult readers can read a variety of material with ease and interests can read for varying purposes and can read for comprehension even when the material is neither easy nor interesting. The skill of reading a variety of texts will enable learners to adjust the speed and style of their reading to suit the purpose and extract both implicit and explicit meaning from the text. Therefore, reading skill is still one of the most important aspects to be taught in school in order to enable the learners to grasp the meaning from the reading text.

Al Emami (2009) stated that reading comprehension is a complex task that depends on many different automatic and strategic cognitive processes. She also appended that reading fluency, the ability to read with speed and proper expression, is a critical skill for comprehension. It can be noticed the high status reading occupies and captures among the other learning skills. Pardo (2004) defines comprehension as “a process in which readers construct meaning by interacting with text through the combination of prior knowledge and previous experience, information in the text, and the stance the reader takes in relationship to the text ” (p. 272)

The English reading ability is the most important component of English performance, particularly in an academic setting (Huckin, Haynes, & Coady, 1993). to promote students’ English reading competence, Successful students or readers should apply several reading strategies, such as recognizing text structure, posing questions, reflecting on behavior or the process, skimming, scanning, semantic mapping , monitoring comprehension, organizing graphs, taking notes, and rereading (Sung, Chang, & Huang,2008; Yang, 2006).

Pearson and Gallagher (1983) determined that proficient readers incorporate strategies to aid their comprehension. The strategies used by readers allow the readers to interact with their texts and better interpret its meaning. Forgan and Mangrum (1989) add, “If you want your students to read textual materials

effectively and efficiently, you must teach the appropriate study skills and study strategies". Many researchers point out that research on comprehension strategies took on greater importance. They stated that comprehension strategies help the learners to understand both spoken and written passages more effectively.

Al-Khateeb & Idrees, 2010; Artis, 2008; McDaniel, Howard, & Einstein, 2009; Robinson, (1970) stated that several reading comprehension strategies provide clear guidelines to help students learn and practice techniques that imitate the behaviors of highly proficient readers such as SQ3R, 3R, and KWL strategies.

In the last three decades, reading learning strategies have become a widely used across different grade levels and subject areas. Using reading strategies with college students enhances their learning motivation, knowledge retention, understanding and proficiency. Robinson (1961, p.1) claimed, "Contrary to the opinion of many students, the way to achieve effective study is not by more study or more determined concentration, but by changing the quality of the study method". Acting on his belief that students needed an effective study skill method, Robinson (1941) created the SQ3R reading strategies.

SQ3R, is one of the most remarkable and fertile strategies which consists of five steps (surveying, questioning, reading, reciting, and reviewing), is the most popular reading-study system and techniques for approaching a reading text.

Brown (2000, p.315) stated that this strategy consists of the following five steps:

"Survey: skim the text for an overview of main ideas.

Questioning: the reader asks questions about what he or she wishes to get out of the text.

Read: read the text while looking for answers to the previously formulated questions.

Recite: reprocess the salient points of the text through oral.

Review: assess the importance of what one has just read and incorporate it into long term association."

An abbreviation was used to enable easier retention, as well as for allowing a quick and simple reference. SQ3R presents a detailed step-by step outline of what a reader should accomplish while reading.

SQ3R is a meaningful reading method in which students practice different reading strategies (Huber, 2004). The SQ3R process is complex, and the knowledge constructed during this process

is comprehensive and varied. Novice and intermediate learners must expend more cognitive and behavioral effort in operating and managing the process and knowledge before they become experienced and superior. Their effort may impede reading comprehension when learners are unfamiliar with this method.

Then their motivation may become lower for using and practicing this strategy (Artis, 2008).

SQ3R is an effective reading strategy; it remains the most popular method among teachers. SQ3R provides useful examples for poor readers to improve, and gives meaning and purpose to reading. SQ3R techniques, such as skimming, questioning and summarizing, have also been proven to enhance reading comprehension and may foster in students a familiarity with such techniques.

Robinson (1961) cautions that this is a process that needs to be practiced before it can be perfected. However, once the reader has worked through outstanding issues, the reader should be able to read at a quicker pace, identify the important ideas, and retain information.

Many researchers found that another strategy which may have a significant effect on the teaching reading process is the semantic mapping strategy. Avery et al. (1997) define semantic mapping as "a graphic representation or picture of one's thoughts, ideas, and attitudes toward a key concept".

Semantic mapping is a diagram which helped learners see the relationship between words. Since it was developed by Hanf (1971) .Such strategy had been used widely as a vocabulary development strategy. In fact many semantic maps use short words or phrases that caught many learners attention. This kind of strategies are ideal for many types of learners, including English Language readers with intermediate proficiency. Tree maps can be used to show classifications, analysis, structures, attributes, examples, and brainstorming.

Semantic mapping diagram represents the message of the text. It is an excellent strategy to reading comprehension (Schmidt, 1986). Stahl & Vancil (1986) mentioned that semantic mapping represents a diagram of the relationships between words according to their use in a particular text. Many researches indicate that semantic maps are frequently used graphic organizers that help students analyze texts and group the ideas into meaningful clusters. For example, Raymond C. Jones, (2006) stated that semantic mapping can be a helpful reference for students to use in clarifying confusing points as they are reading. Once students are familiar with the nature of the semantic maps, they can create their own as a during-reading or post-reading activity. Barr, Sadow, and Blachwicz (1990) emphasized that reading is an active process in which readers interact with the text to reconstruct the message of the writer. Antonnaci (1991:174) stated that, "semantic mapping is a visual representation of knowledge, a picture of conceptual relationship". Zaid (1995:6) said that, "the students who use semantic mapping manifest considerable improvement

reading comprehension, written expression and vocabulary development

Numerous studies have shown the effectiveness of SQ3R with school and university-level students in EFL reading classes. For example, Robinson (1970) conducted two studies to determine the effectiveness of the SQ3R method. One study was conducted with a group of students enrolled in a “how to study” course. The students determined their individual reading abilities by having their reading rates and comprehension abilities assessed with a pre-test. At the beginning of the study, the students’ reading rates were in the 34th percentile, and the average comprehension level was in the 43rd percentile. The students were instructed on how to use the SQ3R method and given several days to practice using the method. The students were then given a second assessment to compare to the original results. The results showed a significant increase in both student reading rate and comprehension.

The second experimental study conducted by Robinson (1970) examined the effectiveness of the study skill when used to prepare for an examination. The students were told to use their own pre-established study habits to prepare for a quiz. The students were given a quiz, in which the average number of incorrect responses was 15. The students were then taught the SQ3R method and given a second quiz of equal difficulty. After students were given the second quiz, the average amount of incorrect responses dropped to six (Robinson)

Carnin’s, and Gersten’s study (1982), which was conducted with 45 fifth graders. The students were split into three groups of 15, and each was instructed using a different technique. Students were taught using systematic instruction through the use of SQ3R, independent study with feedback, or given no instruction. The result showed that students who participated in the systematic instruction achieved

higher scores on the short answer assessments than those students who participated in the independent study and feedback, or who were given no instruction. Scores appeared to be greater on both short and long-term assessments.

Huber (2004) argued that SQ3R is simply a variety of strategies placed together in the hope of gaining a comprehensive effect. She questioned whether SQ3R had any positive effect on students and their comprehension of expository texts. Huber further stated SQ3R was not comprehensive enough and that it did not address students’ lack of prior knowledge and experiences with the ideas...the main reason students struggle with expository texts.

Artis (2008) discusses the importance and effectiveness of SQ3R with marketing Students. He suggests that SQ3R causes students to change their negative thoughts on reading textbooks. Artis also believes, “SQ3R introduces a diverse set of mega cognitive reading techniques in a way students can easily understand and implement” (p. 134).

Baier (2011) conducted a study to determine whether integrating SQ3R into fifth grade students' science reading strategies would improve their overall comprehension. The study also investigated students' preexisting reading strategies and their thoughts on whether they would continue to implement SQ3R into their reading habits. The results of the study indicated that SQ3R significantly improved fifth grade students'

overall comprehension scores of expository texts.

Yi Li, Yu Fan, Wei Huang and Dong Chen(2012) developed an e-book reading system with an integrated reading guidance module and an annotation map, and conducts an experiment for examining the effect of this system on reading, reviewing, navigational performance, and reader behavior. The results showed that the annotation map significantly improves reviewing and navigational performance.

Several practical studies have investigated semantic mapping strategy on students, and reported that teaching this strategy is important for enhancing reading comprehension.

Margosein, Pascarella and Pflaum(1982) compared the effects of two direct vocabulary instruction strategies: semantic mapping and context on word learning of low reading Hispanic students. The sample consisted of forty-four seventh – eighth grade students from a parochial school in a Mexican-American community. The sample was assigned to treatment groups randomly. Twenty one students were assigned in the semantic mapping strategy group while twenty three were assigned in the context strategy group. Both groups received a weekly test of the target words for eight weeks . the results revealed that the low reading Hispanic students acquire greater knowledge through a semantic mapping strategy than in a typical context strategy. It also indicated that the magnitude of the semantic mapping strategies effect depend on the sample's level of pre-treatment reading achievement.

Malendez (1991) investigated the effect of semantic mapping, reading level on culturally diverse students, particularly Filipino – Americans. The results of this investigation indicated a strong relationship between semantic mapping and reading comprehension. This study also indicated a strong correlation between semantic mapping and reading level.

Svenconis and Kerst (1995) investigated the effectiveness of employing semantic mapping strategy versus non-semantic mapping for learning vocabulary in a hypertext environment. The sample consisted of forty –eight school students in grades 9 through 12. The majority of the sample was freshmen and sophomores. The sample was selected randomly from a pool of students at private high school in the Washington. The results revealed that there was no significant main effect for the semantic mapping strategy. It also confirmed the fact that semantic with sound produced superior scores than the other conditions except word listing without sound condition.

El-Koumy (1999) conducted a study to investigate the effects of three semantic mapping strategies on EFL. The subjects for the study were 187 freshmen enrolled in the department of French at the Faculty of Arts, Menoufia University, Egypt. These subjects were randomly assigned to three treatment groups. These groups were instructed by the researcher using the same reading materials, but three different semantic mapping strategies: (1) teacher-initiated semantic mapping, (2) student-mediated. The result showed no significant differences in the mean scores on the pre-test among the three groups of the study. The post test results revealed that students in the teacher-student interactive semantic mapping group scored significantly higher than the teacher-initiated and student-mediated semantic mapping groups ($t = 9.8, p < 0.05$; $t = 12.4, p < 0.05$, respectively). In addition, the post test results showed no significant difference in the mean scores between the teacher-initiated semantic mapping group and the student-mediated semantic mapping group ($t = 0.9, p > 0.05$). These results were discussed and recommendations for future research were suggested.

Kuo and et al (2002) investigated the effect of concept mapping to enhance reading comprehension and summarization. They designed three concept mapping approaches: Map correction, Scaffold fading and Map generalization to determine their effects on the readers' comprehension and summarization ability. The experimental results of 126 fifth grader showed that the map correction method enhances reading comprehension and summarization abilities and that the scaffold fading method facilitates summarization ability

Canas, J.D et al (2004) conducted a study about text concept mapping, the contribution of mapping characteristics to learning from texts. The effects of text concept mapping were tested during one school year (4 classes, 112 eighth graders: two classes were taught using concept mapping with practicing .The other two classes were taught through regular learning skills) . The classes were tested on language mapping comprehension after the teaching process. The findings indicated an advantage of using text concept mapping on reading comprehension.

We can conclude from what is mentioned above, reading is an active process between the reader, writer and the text. Many studies showed almost the same findings; they showed that the effects of using semantic mapping strategy improve the learner's reading comprehension. Most scholars agree that in order to attain reading comprehension readers should bring the background knowledge and experience to construct the meaning besides linguistic knowledge and this could be possible by using strategies as semantic mapping.

Hayati and Shariatifar (2009) conducted a study to compare the effects of semantic mapping and underlining on the reading-comprehension skills of intermediate ELs at a university in Iran for one hour. Twenty students served as the participants in the first experimental group and were given instruction in semantic mapping. Twenty students served as the participants in the second experimental group and were provided with instruction in underlining. Twenty students served as

the comparison group and were provided with elements of traditional instruction (were instructed to read the reading passage by themselves). Relevant data were obtained from a reading comprehension test taken from Intermediate Reading Comprehension (Dehmireh, 1991). This test was administered immediately after each student received his or her respective form of instruction. The results of this study are as follows. The students in the second experimental group (underlining) scored the highest, and the students in the comparison group scored the lowest, in addition, there was a statistically significant difference between the performances of the students in the three instructional conditions. Semantic-mapping group and the comparison group, and the semantic-mapping group obtaining statistically significantly higher scores than the comparison group).

Russell (2010) carried out a study with a mixed measures design to ascertain the effects of Thinking Maps (Alper & Hyerle, 2006; Hyerle, 2000, 2004), a set of graphic organizers (comprised mostly of semantic maps) on the reading comprehension of students (from the third through the fifth grade) for 2 years. Students from four schools served as the experimental group, and the students from four schools served as the comparison group. One hundred, ninety-nine students (137 of which were ELs) served as the experimental group and 179 students (92 of which were ELs) served as the comparison group. The experimental group was taught to utilize Thinking Maps, whereas the comparison group was not taught to utilize semantic maps. The results revealed that there was a statistically significant difference in the growth in reading-comprehension scores within subjects due to the fact that the students in both the experimental and comparison groups demonstrated growth from the fourth to the fifth grade.

Statement of the Problem

Dyreson (1995.p1) has clearly diagnosed the problem of such students:

Many students have great difficulty finding main ideas in informative speech or text and using these main ideas to organize the information to be learned so that a useful memory is constructed – one that guides flexible recall for answering questions or explaining ideas.

Students are quite weak in English in general and reading in particular, as a result, they still find difficulties in reading comprehension such as: they are not able to comprehend what they read fully. Our students are not taught how to learn; They are not interested in what they are reading. They were unable to understand the complex reading text because may be they do not interact with the text they read, nor they build relationships between the terms in the text to build up the meaning. they encounter many lexical, syntactic, and semantic difficulties when they are asked to read and they cannot generate ideas about certain topic. students are expected to read a variety of reading texts but fewer teachers only provide adequate explanation on strategic skill that needed

to complete the task (Paris & Oka, 1986). I think from my experience that our students are not aware of the strategies that may help them in reading.

Purposes of the Study

The present study attempts to investigate the effectiveness of using SQ3R and semantic mapping strategies for teaching reading comprehension to students at Ajloun National University in Jordan, as compared to the traditional method. Besides, the findings will hopefully empower the teachers and students with a strategy to overcome reading comprehension difficulty or to facilitate the reading process.

Significance of the study

This study aims at providing the teachers with kinds of proper reading strategies that can be implemented inside the classroom and may also help them increase their students' comprehension ability.

Questions of the Study

The study aims at answering the following questions:

1-Are there any significant differences between the mean scores achieved by the experimental group and the those achieved by the control group on reading comprehension on the pre-test

2-Do semantic map and SQ3R strategies have effects on reading comprehension? on other word, Are there any significant differences between the mean scores achieved by the experimental group and those achieved by the control group on reading comprehension on the pre-test that can be due to the semantic mapping and SQ3R strategies?

Definition of terms

semantic maps: Taricani, & Ellen, 2000 define semantic maps as a strategy for present the structure of main ideas visually and also the relationships between them. it is a useful tool that helps students learns about how they structure knowledge while supporting the process of knowledge construction.

Reading comprehension: It is defined as the language learners' ability to understand and comprehend a written text to find the main idea and specific information (Ministry of Education, 2002). In this study, it is the process of using prior knowledge to understand the various written text

Strategy: Strategies are defined as learning methods, behavior, problem solving or study skills which make learning more effective and efficient (Oxford and Crookall, 1989 ,as cited by Singhal (2001) .

SQ3R: Brown(2000) stated that this strategy consists of the following five steps: *Survey , Questioning , Read, Recite, and Review*

Methods and Procedures

Research Design

This section presents the methods and procedures that were used to conduct this study. It includes participants of the study, research instruments, procedures, statistical analysis, data collection and data analysis procedures.

Participants of the study

The participants of this research consists of two classes of English Course , Level one with 60 students, 30 in the control group and 30 in the experimental group. The students were belong to Faculty of Arts and Educational Sciences ,Department of English Language and Literature .All students were considered as low proficiency in English language due to their scores obtained in the English language placement test conducted by the university at the beginning of each academic year ; the age range of the participants was between 18 and 35.

Instruments of the study

An achievement reading comprehension test which is to be used as a pre-test and a post-test to both: the experimental and the control group with some modification related to the ways each group is taught accordingly. A multiple-choice reading comprehension test of twenty questions is constructed to assess the students` comprehension of the reading text

Validity and Reliability of the Instruments

To guarantee the validity of the reading text tests , a number of TEFL specialists in Jordanian universities will assess the test. The jury suggested to delete a number of multiple –choice items under the grammar part. To check the reliability, the researcher will conduct a pilot study and modify the test accordingly. To ensure the reliability of the tests, reliability estimates included Cronbach`s alpha was used to gain a satisfactory reliability. The value of Cronbach`s alpha for pre-test was .88 which indicates good and satisfactory reliability value.

The results and their discussion

Results of the first question

The main objective of the study is to investigate the effectiveness of using the semantic mapping and SQ3R strategies on the reading comprehension .To achieve this objective, the researcher selects randomly two classes from Al-Ajloun National University with 15 students each.

The first question asks about if Are there any significant differences between the mean scores achieved by the experimental group on the pre-test and the post- test that can be attributed to the effect of using the semantic mapping strategy and SQ3R strategies. Independent samples T-Test was used to analyze the possible variances in reading comprehension between the two groups participated in the reading comprehension tests. The participants' scores in the pre-test were analyzed to check the homogeneity of the two groups in the reading comprehension level. The participants were considered as low proficiency students in English language due to their scores in the English language placement test administered by the university. Table 1 presents the means and standard deviations obtained by the experimental group and the control group on the pre-test

Table (1) Means and standard deviations obtained by the experimental group and the control group on the pre-test

Reading comprehension Pre -test	GROUP	N	Mean	Std. Deviation
	experimental group	30	80.70	18.04
	Control	30	78.49	20.26

table 1 shows that there were not significant differences between mean scores of the students in the experimental and control groups. In other words, the

two groups were homogeneous in terms of reading comprehension level before the beginning of the experiment.

Results of the second question

The second question asks about if semantic map and SQ3R strategies have effects on reading comprehension on other words if there any significant differences between the mean scores achieved by the experimental group and the those achieved by the control group on reading comprehension on the post-test that can be attributed to the semantic mapping strategy. Table 2 shows means and standard deviations obtained by the control and the experimental groups on post-test.

Reading comprehension Post -test	GROUP	N	Mean	Std. Deviation
	experimental group	30	.5807	.15787
	Control	30	.5067	.10996

Given the information in table 2, one can clearly see that the mean score obtained by experimental group (.58) is higher than the mean score obtained by control group (.50). The table shows that there were differences between the mean scores of the students in both groups; experimental and control in the post-test. In other words, the experimental group outperformed the control group in the reading post-test. Therefore, it can be claimed that semantic mapping and SQ3R seemed to have contributed to the reading comprehension learning improvement of students.

The findings of the study show that semantic mapping and SQ3R strategies group performed better than the control group in the post test (comprehension test). This indicates that these strategies have a significant effect on the teaching reading process and the students who use them manifest considerable improvement reading comprehension, written expression and vocabulary development. This is in line with the previous studies that report the benefits of semantic mapping instruction (Artis (2008; Margosein, Pascarella and Pflaum(1982); El-Koumy(1999).

Conclusion

For successful learning and teaching in language classes, strategy-based instruction is essential. Through the use of specific learning strategies, students can be more successful learners (McKnight, 2010). Learning strategies are the conscious thoughts and actions that learners take in order to accomplish a learning goal (Chamot, 2004). The learning strategies of good language learners, once identified and successfully taught to less competent learners, could have considerable potential for enhancing the development of second language skills (O'Mally et al., 1985).

Since the fact that EFL learners in the universities specially those whose major is not English language, reading comprehension ability is of utmost importance in academic milieu, they need different reading strategies in order to improve comprehension and enhance reading speed.

In connection with this finding, semantic mapping and SQ3R strategies made on average considerably higher gains on the reading comprehension than those of the traditional strategies taught with traditional instruction. In addition, the EFL learners were able to remember a greater percentage of the steps associated with the semantic-mapping and SQ3R strategies

The present study opens up a new dimension of research by introducing the effect of these strategies on reading comprehension. Future research can be conducted on certain types of semantic maps as an effective technique to reading comprehension and reading speed. Exploring more about the application of various semantic maps remains a fertile ground for further research. Future studies are necessary to further the research on cognitive strategy instruction in general and the semantic-mapping and SQ3R strategies in particular, ascertaining with teaching methods will be the most effective means for increasing the reading comprehension skills of EFL learners.

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