The Impact of Schema Activation on Reading Comprehension of Cultural Texts Among Iranian EFL Learners

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Abstract

It is believed that the readers' background knowledge (schema) interacts with the content of the passage they are reading. So decoding a message more accurately needs the activation of vocabulary and structure knowledge as well as background knowledge. The aim of the present study was to determine whether schema activation has any effect on reading comprehension of culturally-loaded texts. The subjects were 76 sophomore students divided into control and experimental groups. The students' schema in experimental group was activated through pre-reading activities while the participants in control group received no treatment. The results of the t-test showed a significant difference between the mean scores of pre-test and post-test of the experimental group before and after schema activation. Correlation analysis also revealed that as participants received more background knowledge, their comprehension of cultural texts was improved. The study finally explored some pedagogical implications.

Key words: Schema activation; Reading comprehension; Cultural texts; Pre-reading activities

INTRODUCTION

In many foreign language situations, reading is a skill which is highly valued by EFL students as well as teachers. So it is important to study the process of reading to understand what happens to a reader while receiving a message from a written text. In 1970s, the passive role of readers changed to an active one (Aron,1986). Even in recent years, the active role of readers was substituted by an interactive one. It is believed that readers' background knowledge interacts with the content of the passage (Carter & Nunan, 2002). One way to activate students' schema before reading a text is through using pre-reading activities. A large body of research supports the idea that pre-reading tasks have a great effect on reading ability of native speakers as well as EFL learners (Rowe & Rayford, 1987; Blau, 1982; Steffensen *et al.,* 1979; Carrell, 1981). Pre-reading activities are supposed to prepare readers for reading and to motivate them to read. Even when the text is culturally-loaded and students lack background knowledge, these tasks seem more essential (Johnson, 1982). Unfortunately, in most reading classes the students' schema is not activated by pre-reading activities; as a result, problems may arise while reading. A good example of culturally bound materials is texts about special occasions like holidays in the target culture. If students do not receive any background information, they usually fail in comprehension of such texts.

It has been found that teachers do not usually show any tendency to use pre-reading activities due to their unawareness of the advantages of pre-reading tasks, shortage of their class time, and students' lack of participation in such activities. Undoubtedly, training students with the ability to read a text with direct comprehension needs a progressive program (Rivers, 1981). Due to the importance of the role of schema activation in reading comprehension and the shortage of research in this area in Iran, the present study seems significant. In this regard, Keshavarz *et al.* (2007) claimed that the effective teaching of reading comprehension necessitates an understanding and analysis of its nature and components including text, task, and reader variables.

The present study specifically focused on some task factors involved in reading comprehension. The main purpose of the study was to determine whether schema activation through pre-reading activities - pictorial context, pre-questioning, and previewing - has any effect on the reading comprehension ability of cultural texts among Iranian EFL learners. The study addressed the following null hypotheses:

1.   Ho There is no significant difference between the mean scores of the pre-test and the post- test of the experimental group before and after schema activation.

2.   Ho There is no relationship between the pre-test and the post-test scores of the experimental group when the students' schema is activated through pre-reading activities.

1. REVIEW OF LITERATURE

By the mid- to late 1970s, many researchers began to conclude that reading was not primarily a process of getting information from the printed page in a letter-by-letter or word-by-word manner; it was regarded as a selective process. Instead readers use the knowledge they bring to the reading to aid them to comprehend the contents of the text better. In the 1980s and 1990s, the role of the reader shifted. In early theories on reading, there was a shift in emphasis from a passive reader to an active one. Recently, another shift was made about reading-from an active skill to an interactive one through which the reader is required to extract meaning from the written text by the interaction of his schema with the contents of the text (Carter & Nunan, 2002).

In general, some studies on reading comprehension have shown that subjects read passages with native themes more rapidly than passages with nonnative themes. Through membership in a culture, an individual possesses the information in a rich system of schemata. However, when the cultural backgrounds of the author and the reader differ, the reader may not understand the text appropriately. The schemata needed for reading comprehension in a second language are often nonexistent or contain inaccurate information in L2 settings (Aron, 1986; Carrell & Eisterhold, 1983). Floyd and Carrell (1987) taught intermediate ESL students the appropriate background information about a typical Fourth of July celebration before they read a passage on the 4th of July holiday. The results revealed that the cultural origin of the passage had a greater effect on comprehension than the syntactic or semantic complexity of the text.

Johnson (1981) examined the effect of both the linguistic complexity and the cultural origin of a text among a group of Iranian ESL students and American monolingual students. Half of the participants read two unadapted English stories: one from Iranian folklore and the other from American folklore. The other half read the same stories in adapted or simplified English. The results on a multiple-choice test with questions on explicit and implicit information in the texts indicated that the cultural origin of the story had more effect on the comprehension of the ESL students than the level of semantic and syntactic complexity. However, for the native English readers both the level of syntactic and semantic complexity and the cultural origin of the story affected comprehension.

Similarly, in a study by Chen and Graves (1995), the effects of previewing and providing background knowledge to Taiwanese college students were investigated. The results revealed that the use of a combined treatment - previewing and providing background knowledge - contributed a lot to a better understanding of the stories. The results of this study were compatible with the results from other L2 studies which provided cultural background to L2 readers (Gatbonton & Tucker, 1971; Graves *et al.*, 1983; Dole *et al.*, 1991). The findings of the above studies affirmed that background knowledge plays an important role in learning and remembering text information. These findings provide convincing evidence that students with well-developed background knowledge comprehend texts better than those with poor schema.

1.1 Schema Activation

The importance of prior knowledge in the comprehension process has been recognized by teachers and material writers (Hudson, 1982; Johnson, 1981; Steffensen *et al.*, 1979; Pritchard, 1990; Roller, 1990; Carrell, 1987). Schema is defined as the "prior knowledge that is already stored in memory, functions in the process of interpreting new information and allows it to enter and become a part of the knowledge store" (Anderson & Pearson, 1984, p.255). Comprehension is seen as the interaction between top-down processing from activated schema and bottom-up processing from concepts expressed by the text (Bensoussan, 1998). Similarly, Cook (1997) believes that schema theory deals with the reading process where readers are expected to combine their previous experience with the text they are reading. The EFL learner must deal with both the linguistic complexities of a text such as vocabulary and syntax as well as the content, which may be loaded with unfamiliar target culture cues; consequently, the challenge for the EFL learner is great (Anderson & Pearson, 1984). Students will certainly get surprised when the assumed knowledge - shared schema - is unexpectedly missing. So it is quite essential to activate the students' background knowledge before reading a text through a series of activities which would make them prepared for reading and lead to a better comprehension (Yule, 2000). In spite of the crucial role of schema activation, it is often forgotten or ignored in discussion of reading texts (Yin, 1985).

1.2 Pre-Reading Tasks

Pre-reading strategies have been developed to help students relate new information in the text to their background knowledge. Students can be taught to incorporate new information into their existing world knowledge. This can be accomplished through teacher guided instruction and self-initiated strategies (Harmer, 2001). Chia (2001) also reported that some students have no problem with understanding words and structures, but they seem unable to interpret the text accurately. As a matter of fact, most students rely too much on bottom-up processing of individual words and analyzing sentence structures, but do not apply top-down processing for the overall understanding of the text. This may be due to inappropriate and insufficient instruction. That is why, it is claimed that providing students with traditional pre-reading activities such as word definition, and structure explanation seems questionable. Chia (2001) calls pre-reading activities **enabling activities** since they provide a reader with necessary background to organize activity and to comprehend the text. Pre-reading techniques - previewing, pre-teaching vocabulary, and pictorial context - are intended to help EFL students overcome the problems that interfere with their comprehension such as lack of vocabulary knowledge, difficulty in using language cues or lack of conceptual knowledge. The pre-reading tasks used in the present study are as follows:

1.2.1 Previewing is a type of pre-reading activity appropriate for situations in which texts are difficult and may contain culturally unfamiliar materials. Previews are introductory materials presented to students before reading to provide specific information about the contents of the reading material. Previews; thus, can provide readers with top-down semantic and structural information before reading, which may compensate for information they may not acquire from their bottom-up processing of the text. Previews seem very helpful because the questions and directions in previews imply what is significant in the passage so that they can relate the information of the text to their prior knowledge (Graves *et al.*, 1983).

1.2.2 Pre-teaching Vocabulary. Recently, the technique of pre-teaching vocabulary to native speakers has received much attention in the research literature. The value of pre-teaching vocabulary to native speakers as a method to improve comprehension has only recently received support in the research literature. In EFL instruction, what is usually done as pre-reading activities is pre-teaching relevant vocabulary. The theorists of reading comprehension believe that vocabulary teaching plays a great role in L2 settings (Taglieber *et al.*,1988; Kameenui *et al.*,1982; Stahl, 1983).

1.2.3 Pictorial Context. A large body of research supports the effectiveness of presenting pictures to aid EFL students' reading comprehension. For instance, Hudson (1982) found that the technique of displaying, discussing, and writing predictions about pictures was significantly more effective than presenting vocabulary. In much the same way, Omaggio (1979) found that among all pictures displayed before reading, the ones related to general theme of the passage improved comprehension. It is generally believed that using pictorial context changes the abstract concepts into more concrete ones which lead to a clearer insight of the passage.

2. METHODS

2.1 Participants

A total of 76 BA students served as the subjects of the study. The participants were in the age range of 20 - 32. They were English students some majoring in English literature and others majoring in TEFL at Islamic Azad University of Kerman, Iran. In order to make the subjects homogeneous and to avoid possible discrepancies among them in their English proficiency, they were selected from sophomore students studying their fourth semester. The subjects, based on their scores on the Oxford Placement Test, were categorized from basic to upper-intermediate level. One group of students ($n = 35$) served as experimental and the other group ($n = 41$) was chosen as control.

2.2 Materials

2.2.1 Oxford Placement Test

In order to ensure that all participants were of the same level with regard to their general English proficiency, the Oxford Placement Test consisting of 100 multiple-choice items of English grammar and structure was administered to them.

2.2.2 Developed Reading Comprehension Test

Another instrument of the study was a multiple-choice reading comprehension test which included a passage and 32 items. The text was about the origin and customs of Halloween (the second well-known ceremonial holiday in the United States, Canada, and some European countries). This topic was chosen because the typical holidays and the customs related to them are culturally-loaded and it seems that students from another cultural background experience difficulty in comprehending them. The test was administered to a group of 30 students (as a pilot study) to achieve the indices of item facility (IF) and item discrimination (ID). The reliability of the test was then computed by the KR-21 method as 0.72. The result showed that seven items had to be discarded. After ruling these items out, the test was administered again and by using KR-21 formula, the reliability increased to 0.87. A reading comprehension test including 25 items was ultimately gained. The steps contributing to test validation were performed before the treatment with another group of students at the same level.

2.3 Procedure

The prepared reading comprehension test (already standardized) was administered to both the control and experimental groups as a pre-test. The students in experimental group were exposed to 2 training sessions of activating their schema through pre-reading activities_ previewing, pictorial context, and pre-teaching vocabulary. In training sessions, the subjects were asked to talk about the information they had about Halloween and their ideas served as a general "warm-up" and basis for discussion. Furthermore, the researcher asked questions on the new vocabulary and tried to reinforce them by giving synonyms and definitions when necessary. Moreover, some pictures were shown to the students to make them more familiar with Halloween customs. Care was taken not to explicitly

teach the text in the training sessions. Without pre-dating, the researcher administered the post-test two weeks after training sessions to control any possible short-term memory effects. While the experimental group was going through the training sessions, the control group received no particular treatment.

3. RESULTS & DISCUSSION

3.1 Descriptive Statistics

Tables 1 and 2 are presented in order to show the distribution of data and their frequencies of pre-test and post-test among control and experimental groups.

Table 1
Descriptive Statistics of Experimental and Control Groups on the Pre-test

	N	Minimum	Maximum	Mean	SD
Experimental group (pre)	35	10	22	16.42	3.297
Control group (pre)	41	10	23	16.57	3.384

Table 2
Descriptive Statistics of Experimental Group on the Pre-test and Post-test

	N	Minimum	Maximum	Mean	SD
Experimental group (pre)	35	10	22	16.42	3.297
Experimental group (post)	35	12	24	18.74	3.393

As the data in Table 1 shows, the mean score of the experimental group on the pre-test was 16.42 and the mean score of the students in the control group was 16.57. The reading passage about Halloween which was used for the pre-test included no pictures, keywords were not given any definitions, and no questions were posed to the students as pre-**reading** activities. In the control group, most of the students' scores fell between 14 to16 out of 25 in the pre-test.

On the pre-test the students in the experimental group were not exposed to pre-reading tasks; they read the passage without any schema activation. As the Table 2 reads, after the training sessions the performance of the students in the experimental group on the post-test was improved; the most frequent score in the pre-test (16) changed to (22) in the post-test. After the treatment -

getting students involved in pre-reading activities - the mean score of the students on the post-test increased to 18.7. As the results indicated, the students in the experimental group achieved a higher mean score on the post-test.

3.2 Inferential Statistics: Hypotheses Testing

3.2.1 Investigation of Hypothesis 1

The first null hypothesis of the present research aimed at investigating the difference between the mean scores of the pre-test and post-test of the experimental group to see whether the treatment had any significant effect on reading comprehension. To test this hypothesis, the index of t-test between the pre-test and post-test of experimental group was computed. Table 3 shows the mean, standard deviation, and standard error from the mean in experimental group on the pre-test and post-test.

Table 3
Paired Sample Statistics of Experimental Group on Pre-test and Post-test

	N	Mean	SD	Std. error from mean
Pre-test (Ex)	35	16.42	3.297	0.503
Post-test (Ex)	35	18.74	3.393	0.524

Table 4
Paired Sample Test of Experimental Group: Pre-test and Post-test

Test Value = 0					95% Confidence interval of the difference	
	t	df	Sig. (2-tailed)	Mean difference	Lower	Upper
Pre-test	32.658	42	.000	16.42	15.40	17.43
Post-test	35.786	41	.000	18.74	17.68	19.80

Table 4 outlines that the participants in experimental group had significantly increased their scores in the post-test. As the achieved significance was less than 0.05, the first null hypothesis was rejected, that is the means on pre-test and post-test were significantly different to support the claim that schema activation can enhance comprehension ability among EFL learners.

3.2.2 Investigation of Hypothesis 2

The second null hypothesis targeted at investigating the relationship between the pre-test and post-test scores of the experimental group. To test this hypothesis, the Pearson Product Correlation was conducted .The achieved significance was gained at 0.000<0.5 so the second null hypothesis was also rejected i.e. the correlation of 0.687 was found between the pre-test and post-test scores of the experimental group which indicated a good relationship. In other words, the pre-test scores of the students in the experimental group before instructing them by pre-reading tasks were lower than their corresponding post-test scores after activating their schema. Table 5 reveals the correlation between pre-test and post-test scores of the experimental group.

Table 5
Correlation Between Pre-Test and Post-Test Scores of the Experimental Group

		Pre-test	Post-test
Pre-test	Pearson Correlation	1	0.687**
	Sig. (2-tailed)		.000
	N	43	36
Post-test	Pearson Correlation	0.687**	1
	Sig. (2-tailed)	.000	
	N	36	42

**Correlation is significant at the 0.01 level (2-tailed)

Since there is a significant relationship between the pre-test and post-test scores of the experimental group (Figure1), it can be concluded that as the participants in experimental group received more background knowledge, their comprehension of cultural texts was enhanced.
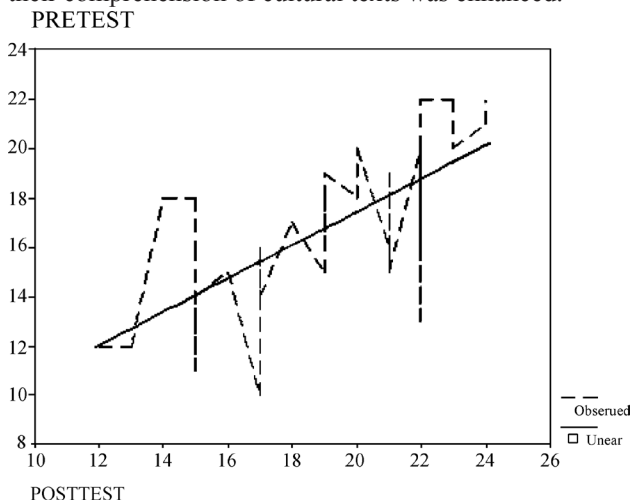

Figure 1
Linear Regression of Scores of Experimental Group (Pre-Test and Post-Test)

CONCLUSION

From the perspective of schema theory, reading comprehension is a function of the reader's possessing and activating the appropriate schema in interaction with a text. Second language comprehension failure may be due to mismatches between the schema presumed by the text and those possessed by the reader (Carrell, 1984). Teacher guidance may be essential since students may need help in figuring out how the new schema relates to the existing schema. Finally, although this study has focused specifically on schema activation and its role on reading comprehension of cultural passages, the results and implications of this study are equally applicable to other less culturally-bound materials. Having proper background knowledge of a text is as important for an EFL reader encountering scientific texts, news stories, and other texts as it is for culture-specific texts.

Implications

The results of the study may be of great value for language teachers, writers, and program administrators. As the first implication, teachers of EFL reading need to be aware of the important role of background knowledge of a text. "A teacher of reading might thus be viewed as a teacher of relevant information as well as a teacher of reading skill" (Stevens, 1982, p.328). As a matter of fact, a teacher can help students draw relationships between their personal experience and the materials discussed in the text. Furthermore, students should be taught to take advantage of contextual clues, titles, or pictures. The study focused on another implication for writers as well. Since the purpose of writing is communication and the writer is not present to supply additional information the reader may need, writers must have a profound knowledge of the subject matter that will be conveyed to the readers and must decide what details the reader will need and what details can be supplied by the reader's prior knowledge of the subject. So writers must intuitively assume the reader's role. Last but not least, administrators can use certain programs to train language teachers on the appropriate methods of activating students' schema before reading cultural texts. Great care needs to be taken to provide programs to familiarize reading teachers with the target language as well as culture. Reading teacher should be made aware of the results of the studies on the crucial role of schema activation on reading comprehension. Such findings will certainly affect the teachers' view about pre-reading activities and they may come to the conclusion that spending a certain amount of time on enabling activities is really worthwhile since students eventually achieve a better performance.

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