

## The Relationship between Background Knowledge and Reading Comprehension

Razieh Hosseini<sup>1\*</sup>, Keyvan Mahmoodi<sup>2</sup>

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1. Department of English, Malayer Branch, Islamic Azad University, Malayer, Iran.

2. Assistant Professor, Department of English, Malayer Branch, Islamic Azad University, Malayer, Iran.

\* Corresponding Author's Email: razieh.hosseini67@yahoo.com

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**Abstract** – This research was an attempt to find the effect of topical background knowledge on students' reading comprehension. This research was carried out with 60 male and female students of Payam Noor University. The students were divided into two groups with 30 students in each group. To see whether the two groups are homogeneous before the treatment, an Oxford Placement Test was administered. After that, the researchers gathered information by a questionnaire. Accordingly, the students divided into two groups: the first group was students who had topical background knowledge and the second group was students who did not have topical background knowledge. Then, the test of reading comprehension was administered to both groups. After that, the researchers compared these two groups in ex-post-facto method. The finding indicated that the topical background knowledge had a positive effect on students' reading comprehension performance.

**Keywords:** reading comprehension, background knowledge

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### I. INTRODUCTION

Topical knowledge is widely discussed as a critical factor in learning, but in practice it is rarely addressed outside of assessment. Yet, it is an essential and important element of acquiring new knowledge. A study of students reading comprehension found that background knowledge was the strongest predictors of success and this factor indirectly influenced whether a student would apply problem-solving strategies when meaning breaks down (Cromly & Azevedo, 2007).

In other words, topical knowledge is not something that merely sits dormant until it is needed; it mediates the extent to which other reading comprehension behaviors are utilized. Instruction of strategies is likely to be pointless when background knowledge is overlooked. The demand placed on topical knowledge accelerates as student's progress through the grade levels. Students are required to activate and apply previously learned concepts in novel ways. They must read, discuss, and write about subjects that are conceptually more difficult, often drawing from knowledge learned in subject areas.

In other words, in the rush to teach new information, it can be tempting for educators to overlook background knowledge. Background knowledge or topical knowledge has a profound influence on student's ability to comprehend what they read. Its effect can be

defined directly as in knowledge of the topic, as well as indirectly, especially in the ability to resolve problems when reading are lost.

The common core state standard (CCSS) are likely to challenge students further as history, social studies and science teachers join English teachers in preparing students to comprehend informational texts. The CCSS place an emphasis on the use of complex texts that require students to read closely in order to discuss concepts, provide evidence and support claims. The ability to do so depends in large part on the background knowledge they bring to the text (Fisher, 1932).

Perhaps the most well-known effect of topical background knowledge is its ability to directly influence the understanding of what is read. It makes perfect sense –the more you know about a topic the more likely it will be that you can comprehend what is written about it. Background knowledge also acts indirectly on reading comprehension. Fluency, an important contributor to overall reading comprehension, is heavily impacted by the level of background knowledge on possesses about a topic. The ability to infer meaning in some text is positively influenced by the level of topical background knowledge the learner has.

In ESL learning context, teachers must be cautious about making any assumption about the cultural or topical background of ELLs. In a single ESL class, students may have widely different L1 background, background, language proficiency levels, cultures or prior experiences with literacy. This has several implications for teachers of ESL literacy .First of all, this may mean that ELLs bring different world and background knowledge, as well as different degrees of topic familiarity, to the task of reading, something that is likely to influence their comprehension of what they read (Sen, 1984).

This variability of background in the classroom also suggests several things. First, teachers need to incorporate "responsive teaching" by using prepared to employ a variety of teaching approaches and techniques with ELLs. Theoretical support for this view comes from schemata theory. This theory envisions information – processing model of the mind in which knowledge is stored in related units that can be recalled and activated to operate on incoming information (Anderson, 1984). Schema theory assumes that readers use a process of semantic constructively to create meaning from a written or spoken text, which itself has no meaning.

Thus, meaning is created by the reader based on the interaction between his background knowledge and the reading. According to this theory meaning doesn't exist in the written material. Instead the reader recreates the authors intended message based on the interaction that takes place in his head between the text and his background knowledge.

Schema theory also predicts that as readers read they are able to go beyond the word and sentence level to the overall organization and discourse level of the reading because their background knowledge or schemata enable them to expect and to predict the way in which the writer has organized the material.

The uncritical acceptance of schema theory represents a major dilemma for higher comprehension processes. The common assumption is that schema theory supports comprehension by calling up stable background knowledge representations that support and interpret the text knowledge. The dilemma is that schema theory is hardly a theory, and there

is very little research which actually explores what a schema is or how it would work for reading comprehension. Rather it is a useful simplifying metaphor for the more general notion of prior knowledge.

A fundamental tenet of all recent theories of comprehension, problem solving and decision making is that success in such cognitive arenas depends on the activation and appropriate application of relevant pre-existing knowledge. Despite the substantial agreement on this general claim, we know very little about organization of background knowledge and the method of its application to the understanding of now situation.

### **A. Research Question**

1. Is there a relationship between topical background knowledge and comprehension of reading passage?

## **II. METHOD**

### **A. Sampling**

The study was based on a quasi-experimental design. This research design does not require random assignment and is used where true experimental designs are not feasible (Ary, Jacobs and Razavieh, 1996, p. 343). Since the students were grouped into two separate classes, it was not possible to randomly assign each student to one of the two study conditions. Therefore, due to using intact classes and not randomly choosing the students, the research design of the present study was quasi-experimental.

### **B. Instruments**

The materials employed in this study consisted of an OXFORD Placement Test, a questionnaire, and a descriptive passage adopted from Active Book 2. The OXFORD Placement Test consists of 40 multiple choice questions and students had 30 minutes time to answer them. The first five items of this test included five notices and asked the participants to choose where they can see those notices. The next section of the test included three incomplete texts which asked the students to choose the word which best fit each space in the text from the choices. In the second half of items it was asked the students to choose the word or phrase which best completed each statement. The other material used in this study was a questionnaire which was about the human brain and the aim of this questionnaire was to gather information about the students' topical background knowledge about the human brain and memory.

The third material used in this study was a descriptive passage adopted from ACTIVE Book 2. This text was about the human brain and memory. This was contained seven paragraphs and followed by some reading comprehension items. The rationale behind selecting this passage was that it was supposed to be at the appropriate level of difficulty in terms of lexical and syntactic complexity for the participants. Two important factors were

taken into consideration in selecting the above passage. First, care was exercised to choose a passage of manageable length to give the participants the chance of reading them without being frustrated. Second, the extent to which the passage had cultural elements, and therefore, could complicate the comprehension process was taken into account in the selection process.

### **C. Procedures**

The purpose of this study was to investigate the effect of topical background knowledge on Iranian students' reading comprehension performance. In order to control other factors affecting reading performance of the participants, it was needed for them to be homogenous in terms of their general English proficiency; therefore, the OXFORD Placement Test was administered to the subjects. After the researchers made sure of the homogeneity of the subjects, the questionnaire about the human brain and memory was distributed among the subjects.

The purpose of this questionnaire was to gather information about topical background knowledge of the students. This test consisted of eight multiple choice items about the human brain and memory, and the subjects had 15 minutes time to answer them. After that, the researchers based on the gathered scores divided the students into two groups. The first group consisted of those students who had the background knowledge about the human brain and memory. And the second group consisted of the subjects who didn't have this background knowledge.

The third phase was administration of the reading passage that was about human brain and memory. This passage consisted of seven paragraphs and followed by some reading comprehension questions. The students had 30 minutes time to read the passage and answer the related questions. Moreover, during these steps the researchers informed the students that their scores would not affect their final scores and that they should rely on their own knowledge to complete the tests.

## **III. RESULTS**

To answer the research question, 60 female university students were chosen. Then the researchers gathered information about two topics by questionnaire. Next the test of reading comprehension was carried out. This test was a descriptive passage about a scientific passage that adopted from ACTIVE Book 2 and followed by some reading comprehension questions. The purpose of this test was to ensure that the differences between two groups regarding their reading comprehension performance were significant.

After that, the researchers compared two groups and got conclusion. Actually the results support this. As it is presented in the following table, the mean score of students who had background knowledge about the topic was ( $M=84.26$ ), and the standard deviation was ( $SD=4.88$ ). And the mean score of students who didn't have background knowledge about the presented topic was ( $M=74.63$ ) and the standard deviation was ( $SD=5.51$ ).

**Table 1: The Results of Descriptive Statistics of Both Groups**

	Mean	Std. Deviation	N
Reading (no- background)	74.63	5.51	30
Reading (background)	84.26	4.88	30

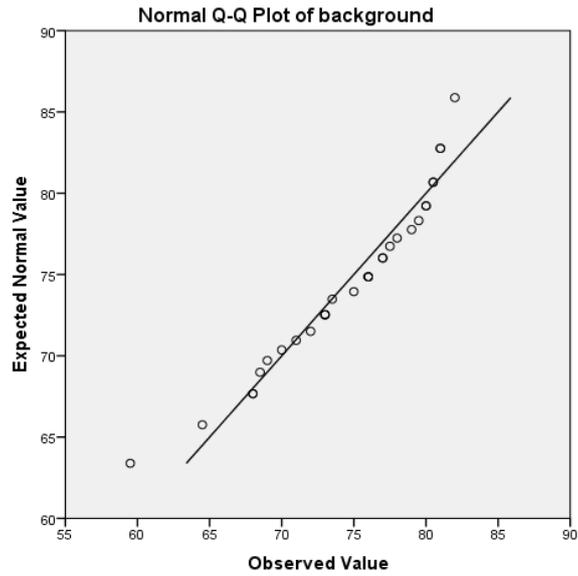
From the descriptive table, it is revealed that Mean of the performance for the groups who had the background knowledge about the reading passages they had received was remarkably higher (Mean=84.26, SD=4.88) than the groups of the students who lacked such a background knowledge about the reading passage (Mean=74.63, SD=5.51).

**Table 2: The Results of Correlations between Reading and Background**

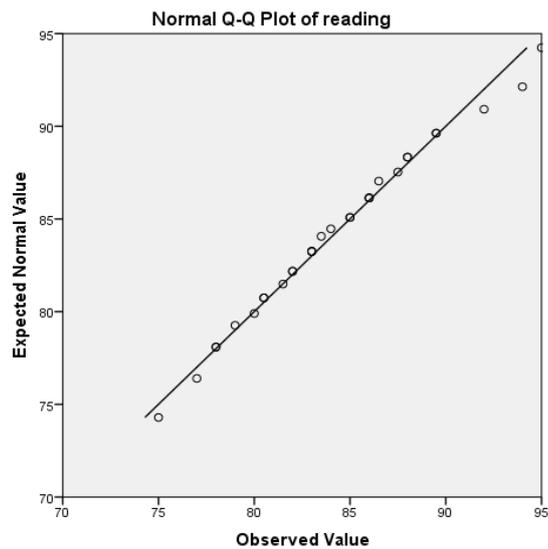
		Reading	Background
Reading	Pearson Correlation	1	.777*
	Sig. (2- tailed)		.000
	N		30
Background	Pearson Correlation	.777*	1
	Sig. (2- tailed)	.000	
	N	30	

A Pearson product-moment correlation was run to determine the relationship between students' reading background knowledge and their performance in a reading comprehension test. The data showed no violation of normality, linearity or homoscedasticity as these are the assumptions needed to be checked before applying any parametric tests. There was a strong, positive correlation between students' reading background knowledge and their performance in a reading comprehension tests, which was statistically significant ( $r = .777, n = 30, p < .05$ ). There was almost 78% correlation between background knowledge and reading comprehension achievement.

It is interpreted that students with the background knowledge were noticeably more successful on their reading comprehension test compared with the students who did not have such background knowledge about the reading text. To put it another way, background knowledge is an effective key factor to students' achievement in reading comprehension.



**Figure 1: *The Plot of Background***



**Figure 2: *The Plot of Reading***

These plots also confirmed the strong correlation between background knowledge and reading comprehension performance.

#### IV. CONCLUSION

The study was, in fact, an attempt to shed light on whether cultural familiarity bears any significant impact on Iranian EFL learners' reading comprehension. In conclusion, the results from the present study elucidate the nature of the impact of a type of background knowledge, that of cultural familiarity, on L2 reading comprehension. The participants in the

experimental group, who were made more familiar with the cultures of short stories, scored significantly higher than the control groups. The findings were in accordance with the idea presented in the literature review, since the majority of the research existing in the field of reading and cultural familiarity suggests a positive relationship between reading comprehension and a student's cultural knowledge. The results also support the schema theory of reading, and research on L2 reading (Carrell, 1991; Hudson, 1982; Levin and Haus, 1985) which demonstrated that reading comprehension can be facilitate by knowledge of text content.

By providing a knowledge structure during the encoding/decoding process, readers can compare and fit pieces of incoming information; therefore, making it possible to assimilate text information without the need to consider all the words and phrases in the text. Some pedagogical implications can be drawn here. Probably the most noticeable finding of the study is that the background knowledge which the second language readers bring to a text is often culture-specific. According to Hudson (1982), "the reading problems of the L2 reader are not due to an absence of attempts at fitting and providing specific schemata . . . Rather, the problem lies in projecting appropriate schemata" (p. 9). In order to make sense of texts, second language reader attempts to provide schemata persistently and if the reader cannot access the appropriate existing schemata, or if the reader does not possess the appropriate schemata necessary to understand a text, his or her efforts will fail.

Therefore, one of the problems in the EFL/ESL reading classrooms is the implicit cultural knowledge presupposed by a text. As a result, teaching cultural materials and texts provide learners with 'insights' and a meaningful comprehension of how a language functions. Moreover, understanding a foreign culture can lead learners to have positive attitudes towards the language of that culture which results in more motivation in order to perform better on the receptive skills.

The results of this study have another important pedagogical implication with regard to cultural factors in the text selection for the EFL classroom. The criteria for selection depend largely on what we want to achieve from teaching culture in the foreign language classroom. Reichmann (1970, p. 69) states three important ends to be accounted for "in the selection of 'cultural studies' material: (1) the student must gain an understanding of the nature of culture; (2) his cultural bondage must be reduced; (3) he must achieve a fuller understanding of his own cultural background".

## REFERENCES

- Anderson, J. R. (1981). Effects of prior knowledge on memory for new information. *Memory & Cognition*, 9, 3, 237-246.
- Ary, D., Jacobs, L. Ch., Razavieh, A. & Sorensen, Ch., K. (1996). *Introduction to Research in Education (8<sup>th</sup> ed)*. Canada: Nelson Education.
- Carrell, P. L. (1991). Awareness of text structure: effects on recall. *Language Learning*, 42(1), pp. 1-20.

- Cromley, J & Azevado, R. (2007). Testing and refining the Direct and Inferential Mediation Model of reading comprehension. *Journal of Educational Psychology*, 99(2), pp. 311-325.
- Fisher, R. A. (1932). *Statistical Methods for Research Workers*. Fourth Edition. London: Oliver and Boyd.
- Hudson, T. (1982). "The effects of induced schemata on the 'short circuit' in L2 reading: non-decoding factors in L2 reading performance," in Carrell, P. L., Devine, J. and Eskey, D. E. (eds) (1988) *Interactive Approaches to Second Language Reading*. Cambridge: CUP.
- Levin, M. G., & Haus, G. J. (1985). The effect of background knowledge on the reading comprehension of second language learners. *Foreign Language Annals*, 18(5), pp. 391-397.
- Sen, A. K. (1984). *Resources, Values and development*, Oxford: Basil Blackwell.