On the Cultural Schema and Iranian EFL Learners' Reading Performance: A Case of Local and Global Items

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Reading skill has taken on an important role in most EFL teaching situations. While linguistic knowledge is only one aspect of this skill, background knowledge including culture can also play an important role (Alptekin, 2006; Johnson, 1981; Pritchard, 1990; Steffensen, Chitra, & Anderson, 1979). This study investigated the effect of cultural background or cultural schema on the performance of Iranian EFL students on local (bottom-up) and global (top-down) processes. Sixty-six female pre-university students took part in the study. They read five texts with familiar cultural themes and five texts with culturally unfamiliar topics (total=10). The multiple-choice items were designed in a way to test both bottom-up processing (word recognition, literal comprehension and finding referents of pronouns) and top-down processing (making inferences, skimming, scanning, etc). The findings showed that our students performed significantly better on local items compared with global items both for (un)familiar texts. It was also observed that their overall performance was mostly influenced by text familiarity. Their higher scores on local items can be explained by the fact that these items are totally easier to process due to the linguistic context available. In contrast, the difficulty of the global items can be explained because our EFL learners need extra linguistic knowledge to process such items. Also, this difference could be attributed to the teaching situation in which language teachers do not teach students how to read at all and learners are not familiar with higher-level, global processes being important in reading comprehension.

Key Words: reading comprehension, cultural schema, top-down and bottom-up, local items, global items

1 Introduction

Like many other EFL situations, the chances to communicate in English are extremely rare for EFL learners in Iran. For this reason, reading has gained

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an important status especially in academic settings. The ability to read is recognized to be the most stable and durable of the second language modalities (Bernhardt, 1991). Reading has long been considered as an interactive and active process. Ur (1996, p.141) defined reading as "constructing meaning from a written text". Anderson (1999) also explained reading as follows:

> Reading is an active, fluent process which involves the reader and the reading material in building meaning. Meaning does not reside on the printed page. … Synergy occurs in reading, which combines the words on the printed page with the reader's background knowledge and experiences. (p. 1)

In other words, learners activate their linguistic and background knowledge in order to decode the written text. The large number of studies carried out in this area indicates the significance of background knowledge both in L1 and L2 reading comprehension abilities (e.g., Alptekin, 2006; Carrell & Wise, 1998; Chang, 2006; Hammadou, 2000; Huang, 2009; Johnson, 1982; Kendeou & van den Broek, 2007; Keshavarz, Atai, & Ahmadi, 2007; Leeser, 2007; Nassaji, 2002; Ozuru, Dempsey, & McNamara, 2009; Pulido, 2007; Rawson & Kintsch, 2004). Schema theory is based on the belief that "every act of comprehension involves one's knowledge of the world as well" (Anderson 1999, p. 1). Schema includes data structures of general ideas stored in memory (Widdowson, 1983). According to schema theory, meaning does not reside in the written text, but rather in the reader's mind. Decoding this meaning depends on the activation of the related schema in reader's mind through bottom-up and top-down processes. By using these strategies, readers are able to recreate the writer's message.

2 Cultural Schema and L2 Reading

Classically, schemata are divided into two categories: formal schema and content schema (Carrel, 1983, 1987; Bernhardt, 1991). Formal schema is the knowledge of the language that is necessary for understanding the writer's message. Content schema relates to the background knowledge that readers have about the topic or content of the text.

Cultural background is also one of the factors that constructs one's pre-existing knowledge about the world. As Melendez and Pritchard (1985, p. 400) state, "if a reader's [cultural] background differs significantly from that of the author, it is likely that the schema needed to understand a particular concept will be lacking or ignored." Yule (1996) points out that cultural schemata are developed "...in the context of our basic experiences" (p. 87). Ketchum (2006) defines cultural schema as an extension of content schema

which is culture-specific. Cultural schema refers to cultural membership that is needed to fully understand the meaning intended by the writer.

Cultural schema or abstract schema (Oller, 1995) involves cultural familiarity which helps readers to reconstruct the text through referring to more culturally relevant scripts (Oller, 1995). This is probably because different concepts may have different referents in different cultures and may thus generate different expectations on the reader's part. Thus, cultural schema, not dependent on the surface forms utilized in the formation of the text, involves more than a mere literal comprehension of the content of the text (Alptekin, 2006).

Different studies in the field of foreign language reading research show that cultural familiarity has a significant influence on readers' understanding of written texts (Steffensen et al, 1979; Carrell, 1987; Barnet, 1989). All these studies show that culture schema plays an important role in foreign language reading. Familiarity with foreign culturally-oriented topics, lifestyles, experiences, ideologies and even knowledge about how particular types of texts are constructed in a particular culture are effective for reading comprehension. (Alptekin, 2006; Steffensen, Joag-Dev, & Anderson, 1979) and vocabulary learning (Pulido, 2003, 2004, 2007). The classic study was performed by Steffensen et al. (1979) who demonstrated that when students are familiar with cultural norms, they make a better interpretation of the text than when they are not. Further, in cases of unfamiliar cultural norms, students tend to refer to their own cultural features, which result in poor interpretations of the text.

Schema theory has gone under some criticisms too. McVee, Dunsmore and Gavelek (2005) critized schema theory researchers for being exclusively cognitive and not paying enough attention to sociocultural perspectives common in the field today. Instead, they propose a rearticulation of schema theory intended to encompass the ideas that schemata and other cognitive processes are embodied, that knowledge is situated in the transaction between world and individual, and that such transactions are mediated by socially and culturally enacted practices. In spite of some criticisms (e.g. Gredler, 2007; Krasny, Sadoski & Pivio, 2007), McVee et al. (2007) propose for "the *development* of individuals' abilities to abstract (schematic) understandings from experience, experience that is both *embodied* and *social*" (p. 246).

3 Top-Down and Bottom-Up Processing

In processing texts, readers combine lower-level and literal comprehension, based on local cognitive processes of reading such as lexical access and syntactic analyzing, with higher-level, inferential comprehension, based on global cognitive processes such as getting the writer's message and the main

idea of the text. These higher- and lower- level processes are also referred to as top-down and bottom-up processes.

The concepts of top-down and bottom-up processing as strategic models of reading comprehension have been under the focus of researchers for many years. Top-down theory asserts that readers bring knowledge, expectation, assumptions, and questions to the text and they continue to read as long as the text confirms their expectation (Goodman, 1967). On the other hand, bottom-up theory views reading as "matching the written symbols with their aural equivalents and blending these together to form words, and deriving meaning" (Nunan, 1999, p. 252). The top-down model includes skimming, scanning, activating background knowledge, predicting, thinking of the author's main idea, finding clues, contextual guessing, and associating image. Top-down processes are also referred to as conceptually-driven processes. Bottom-up processing, on the other hand, includes literal comprehension, syntactic analysis, cohesive devices, surface meaning, translation into L1, and dictionary use. Bottom-up processes are also called data-driven processes.

While top-down processes are considered as more effective on the reading comprehension than bottom-up processes (Nunan, 1999; Widdowson, 1983), some researchers suggest that bottom-up, lower- level processes are as important in the process of reading comprehension as top-down, higher-level processes especially in constructing the fundamental steps of reading comprehension (e.g., Eskey, 1988; Horiba, 1996; Koda, 1999; Nassaji & Geva, 1999) . Eskey (1988), for instance, points out some of the limitations of a totally top-down model and claims that it emphasizes global (top-down) processing at the expense of local (bottom-up) processing. In other words, a merely top-down model is suitable for perfectly fluent readers who perceive and decode texts almost automatically. This means that both top-down and bottom-up processes are important and an interactive model of reading integrating both local and global processes provides foreign language readers with what they actually need in order to surpass their problems while reading texts. A reading process is an interactive process between the reader and the reading material or the writer (Bernhardt, 1991; Melendez & Pritchard, 1985). The meaning is not attached to the surface of the language form but depends on the reader's ability to use schema knowledge through both bottom-up and top-down processes.

As both higher- and lower-level processes are important for recreating the writer's message, the next step is to identify factors that influence the use of these and other useful reading strategies. Studies in this regard are rare. Pritchard (1990) examined the role of cultural schemata on the reading comprehension processes of proficient 11th-grade readers with an American or a Palauan background. Both groups read two letters in their native language, which dealt with funeral ceremonies in the two countries. The students were asked to give verbal reports of their reading strategies as they

were reading and to retell the passage after reading. From the verbal reports, Pritchard concluded that cultural schemata influence the processing strategies as well as the level of comprehension.

Following the above studies on local and global processes in reading, this study tries to investigate the influence of cultural schema on the use of different types of reading processes by Iranian EFL learners. In other words, the question is whether cultural familiarity influences the way L2 learners are able to perform on top-down and bottom-up items.

4 Method

4.1 Participants

Sixty-six female students studying at pre-university level in Darab (a city in the east part of Shiraz, Iran) took part in this study. They were from intact groups. The reason for their selection was their availability (the researchers' own students). The experiment lasted for three sessions and the participants answered multiple choice items of 10 reading comprehension texts. The age limit of the participants was 17 to 18.

4.2 Instrument

It should be noted that from the 10 reading comprehension texts, five included culturally familiar topics and the other five included culturally unfamiliar topics. In other words, the familiar texts contained topics that were part of the cultural schema of this group of participants. Familiar topics included Nowrooz, Hafez, Persepolis, Persian wedding ceremonies and Ramadan fasting and unfamiliar texts were about Halloween, William Blake, Roman Colosseum, Western wedding ceremonies, and Independence Day. These texts were equal using a readability criterion. Also three native speakers of American English and five Iranian MA students (three TEFL and two Persian Literature students) read the texts and judge he concept of cultural familiarity in these texts using a ranking scale from 1 to 10 based on the degree of familiarity. Based on these judgments, some modifications were made and two texts were omitted (there were originally twelve texts) and one text was changed.

All texts included 6 items, three of which needed top-down processing and the other three incorporated bottom-up processing. In other words, these items were constructed according to the features of these two processing models. For example, a top-down item requires the reader's activating background knowledge, making inferences, deduction and prediction and so on. Bottom-up items, on the other hand, required strategies for word recognition, understanding syntactic relations (finding references) and finding information directly stated in the text.

4.3 Data collection and analysis

Data was collected in three sessions. All students read both familiar and unfamiliar texts in a random way. As a result, each participant has four scores of 15 (total score=60) for their performance on two different item types (top-down and bottom-up) and two different text types (familiar and unfamiliar). As each student had four scores for their performance on different item types and text types, repeated measures analysis was used to analyze the data collected.

4.4 Results and discussion

Table 1 summarizes the results of the repeated measures analysis for text types (familiar and unfamiliar) and item types (top-down and bottom-up).

Table 1. Repeated Measures to Compare Mean Differences of Top-down and Bottom-up Item Types for Familiar and Unfamiliar Texts

Within-subjects factors	
Factor 1	Dependent variable
1	TDF
2	TDU
3	BUF
4	BUU

TD=top-down BU=bottom-up F=familiar, U=unfamiliar

Multivariate Tests						
Effect		Value	F	Hypothesis df	Error df	Sig.
factor 1	Pillai's Trace	.875	1.472E2	3.000	63.000	.000
	Wilks' Lambda	.125	1.472E2	3.000	63.000	.000
	Hotelling's Trace	7.012	1.472E2	3.000	63.000	.000
	Roy's Largest Root	7.012	1.472E2	3.000	63.000	.000

As Table 1 indicates, the F-value of Wilks' Lambda is significant at .0001. In other words, text type has a significant effect on the participants' performance in different item types. Because SPSS did not provide us with post hoc tests (because of a 2×2 comparison) and the total F-value was significant (Table 1), paired-sample t-test was used to see where these differences exactly existed. Table 2 summarizes the results of these comparisons. As Table 2 demonstrates, this group of participants performed better on bottom-up, lower-level items than higher-level, top-down items both for familiar and unfamiliar texts. This could be explained by the fact that bottom-up items are totally easier than top-down items for processing as they

are related to the present text and not to extra linguistic types of knowledge. This also could be reflective of the way language learners had been taught reading comprehension in their language classes. Although the pre-university book contains few top-down reading strategies, the other three high school textbooks do not include any point regarding teaching strategies. Even many pre-university teachers ignore those few points and teach reading skill in a completely traditional manner. Many teachers do not teach their students how to read and the time in reading classes is mostly spent on translation or grammatical and lexical analysis. Students are not taught top-down processes at all and most of them, as indicated by these results, are dependent on bottom-up processes no matter what type of text they are reading.

Another finding of this study which confirms previous studies (Steffensen et al., 1979; Carrell, 1987; Barnet, 1989) is that learners read familiar texts better than unfamiliar texts.

Table 2. Paired-sample t-test for Top-down and Bottom-up Items on Familiar and Unfamiliar Texts

·	Mean	Mean differences	t	df	Sig. (2-tailed)
BUF	12.0606				
Pair 1		1.72727	14.474	65	.000
BUU	10.3333				
TDF	10.6364				
Pair 2		3.37879	14.544	65	.000
TDU	7.2576				
TDF	10.6364				
Pair 3		-1.42424	-5.898	65	.000
BUF	12.0606				
TDU	7.2576				
Pair 4		-3.07576	-9.022	65	.000
BUU	10.3333				

In other words, text type (familiar and unfamiliar) influences reading comprehension which is evident from learners' outperformance on familiar texts compared to unfamiliar texts (Table 2). So it can be concluded that both text-type and item-type influence reading comprehension.

5 Pedagogical Implications and Suggestions for Further Research

As was observed in this study, students performed better on bottom-up items both for familiar and unfamiliar texts. Likewise, they performed better on familiar texts than unfamiliar ones. But what is important is how to read not what is being read. If learners are familiar with different reading

comprehension strategies including top-down and bottom-up processing, they will be able to read all types of texts whether they are culturally familiar or not. It was mentioned in the previous section that lots of time in reading classes is spent on translation, vocabulary and grammar analysis without any emphasis on teaching reading strategies. This needs reforms in EFL teaching programs in schools and universities. English textbooks should be designed in a way to present different drills exercising global and local processes. In other words, an interactive approach integrating both top-down and bottom-up strategies is the best to be followed in our English textbooks.

In the same vein, EFL teachers should also become familiarized with different types of reading comprehension skills and strategies in order to be able to teach them to their students. Many language teachers are not familiar with reading strategies themselves. In their view, reading comprehension is just a decoding skill requiring a word by word translation of sentences. It has been observed that most language teachers practice this approach in their classes and the result is that their students do not get familiarized with reading strategies and treat reading as a practice of translation. To change this situation, language teachers should be taught the theory and practice of the interactive view of reading (Bernhardt, 1991; Melendez & Pritchard, 1985). This needs in-service courses and workshops through which language teachers become oriented with new teaching methods in reading. Likewise, collaborative action research procedures are also helpful in providing teachers with enough feedback while they practice new approaches and reflect on their effectiveness.

As this study was related to two types of local and global items, the findings of this study could be helpful to test developers as well. They should be careful to include different types of items while constructing reading comprehension tests and avoid concentrating on only certain types of items (e.g., local items). The tests should be designed properly to contain both top-down and bottom-up items requiring different types of reading strategies.

There are some other aspects of schema theory which could be studied in other research. This study was conducted for female students as a result of their availability. Other research could be run with male language learners or with a combination of the two. The effects of other factors like L1 literacy, socio-cultural factors, socio-economic status of learners and their general proficiency in English could also be taken into account in relation to schema theory, in particular cultural schema, and L2 reading skill.

6 Conclusion

Most of the students in our EFL setting are apt to focus on local, bottom-up processing (data-driven) particularly at an early stage of learning while the need for engaging in global, top-down processing (conceptually-driven) is not considered seriously in the views of these learners. Students need to get

acquainted with different types of reading strategies to be able to efficiently read any type of text whether they are culturally familiar or not. In other words, an interactive approach incorporating both local and global processes is the best to be followed by language teachers while teaching L2 reading. The conclusion drawn from this study is that what is important in the process of reading is how to read and not what to read. This is what our language teachers and EFL learners need to be aware of.

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