

The effects of content, formal, and linguistic schema building activity types on EFL reading and listening comprehension

Abbas Ali Zarei

Assistant Professor, Imam Khomeini International University

Maryam Mahmudi

MA in TEFL

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Abstract

The main concern of the present study was to investigate the effects of content, formal, and linguistic schema-building activity types on EFL learners' listening and reading comprehension. To this end, 60 Elementary learners in four groups of 15 members each participated in this study. Three groups acted as experimental groups and received content, formal, and linguistic schema-building activities, and one group acted as control group, receiving no schema-building treatment. Two separate one-way ANOVA procedures were used to analyze the participants' scores on the listening and reading comprehension posttests. The result revealed that although there were no significant differences among the effects of schema-building activity types on both listening and reading, the experimental groups outperformed the control group participants. The findings may have implications for EFL learners and teachers.

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Keywords: reading comprehension, listening comprehension, schema-building types, content schemata, formal schemata, linguistic schemata

1. Introduction

Despite the importance of reading and listening, until recently, they were both relatively ignored skills. Traditionally, they were regarded as passive activities. Block (1992) acknowledges that "reading is such a hidden process that it often goes unnoticed in the language classroom" (p. 319), and Chastain (1988) states that "both language teachers and students tend to overlook the importance of listening comprehension skills, because their attention is fixed so completely on their ultimate goal, speaking" (p. 192).

Recently, these receptive skills have attracted considerable attention from researchers. A large body of studies (Al-Issa, 2000; Chen & Grave, 1995; Hirsch, 2003; Shin, 1992; Wu-ping, 2006) have addressed the importance of both listening and reading in language learning.

Perhaps one of the most influential theories affecting both reading and listening is the 'schema theory'. Huang (2009, p. 139) argues that "according to schema theory, any text, spoken or written, does not by itself carry meaning. Comprehending words, sentences, and entire texts requires the ability to relate the material to one's own knowledge".

Different schema types have been introduced by scholars: content, formal, and linguistic schemata (Al-Issa, 2000; Huang, 2009; Oller, 1995; Xiao-hui, Jun, & Wei-hua, 2007). Content and formal schemata are the most common types, which have received more attention from researchers. At the same time, listening has received little attention with regard to the application of schema theory in comparison to reading. The present study aims to investigate the effects of three types of schema-building activities (content, formal, and linguistic) on Iranian learners' listening and reading comprehension skills.

2. Literature Review

Bartlett, a British psychologist, was the first person to introduce schema (Carrol, 2008). Brown and Yule (1983) define schema as an organized background knowledge which leads the readers to expect or predict aspects in their interpretation of discourse. They also believe that "our background knowledge is organized and stored in some fixed schemata, together with some other, more flexible schematic structures" (p. 249). Taglieber, Johnson, and Yarbrough (1988) state that comprehension takes place when readers make use of their schemata (i. e., knowledge structure in memory) and the text.

Grabe (1991) argues that "the notion of schemata remains a useful metaphoric explanation for many experimental results" (p. 384). Similarly, Carrell and Eisterhold (1983, p. 559) note, "what is understood from a text is a function of the particular schemata that is activated at the time of processing the text." In much the same vein, Landry (2002) explains the particular role of the concept of schema to help teachers better understand the process of reading by L2 learners. He distinguishes between a strong and a weak view of schemata. According to Landry, the strong view of schemata "sees them as something influencing the reader's opinion even before a text is read", and the weak view of schemata "would be one of organized background knowledge on a topic leading to predictions of discourse" (p. 2).

Carrol (2008) further justifies the role of schema in reading comprehension. In his opinion, "a schema (plural: schemata) is a structure in semantic memory that specifies the general or expected arrangement of a body of information" (p. 176). According to Carrol, to comprehend a story, the reader needs to have a schema that corresponds to the story. He also introduces the concept of Story Grammar, "a schema in semantic memory that determines the typical or expected arrangement of events in a story" (p.177).

Huang (2009, p. 139) extends the application of schema theory to listening by pointing out that, "according to schema theory, any text, spoken or written, does not by itself carry meaning".

2.1 Types of Schema

Various classifications of schema have been offered in the relevant literature. Johnson (1981) introduces content schema as an important schema that readers bring to the text in order to comprehend it. According to Johnson, this schema contains reader's background knowledge, and knowledge about the culture of the text. In contrast, Carrell (1985) believes that content schema is not enough to comprehend a text effectively. According to Carrell, schema is divided into two types: content and formal. She defines content schema as a reader's background knowledge relative to the content domain of the text. And formal schema is defined as knowledge relative to formal, rhetorical organizational structures of a text. Casanave (1988) adds strategy schema to the above types of schemata. According to Casanave, strategy schema is a generic knowledge that enables a reader to have the routine monitoring and repairing, during reading.

Widdowson (1990, p. 108) categorizes schema into two kinds: ideational and interpersonal. He defines ideational schema as "our knowledge of conceptual content or topic", and maintains that interpersonal schema has to do with mode of communication.

Oller (1995, p. 38) divides schema into three types: content, formal and abstract, and holds that content schemata are concerned with particular arrangements of things in the material world as known through perceptions, whereas formal schemata are the result of inductive connections established across distinct states of affairs that are indexed as being similar in some respect. And abstract schemata as those that carry the inductive integration to the completely general (abstract, non-material, non-syntacticized) level of pure symbols.

Like Oller, Landry (2002), introduces three types of schemata: content, formal and abstract. He defines content schemata as the "clearly evident relationships obvious from a topic" (p. 1). According to him, formal schemata "are distinct connections based on understanding of generalizations and mind set" (p. 1). He also defines abstract schemata as "the hidden factors and thematic considerations" (p.1).

Huang (2009) adds linguistic or language schemata to the other schemata types. For Huang, linguistic schemata include "the decoding features needed to recognize words and how they fit together in a sentence" (p. 139).

2.2 Schema-building and Reading Comprehension

Various studies have investigated the effect of schema building on reading comprehension. Johnson (1982) conducted an experimental study to investigate the effects of building background knowledge on the reading comprehension of ESL students. She wanted her students to read a passage on Halloween. The result showed that ESL readers tend to rely more on their background knowledge of the topic than the linguistic analysis of the text to comprehend the text.

Carell and Eisterhold (1983, p. 560) stress the use of schema-building activities before engaging students in reading comprehension tasks. They believe that a reader's failure of reading comprehension is due to the lack of either sufficient clues in the text or appropriate schema.

Carrell, Pharis, and Liberto (1989) highlight the important role of background knowledge in students' reading comprehension by introducing two methods in ESL reading classes: semantic mapping and experience-text-relationship. Semantic mapping is a brain storming activity in which students verbalize associations on a topic as the teacher writes them on the board. It provides a visual map that activates students' prior knowledge of the topic. Experience-text-relationship provides a link between what students already know and what they will encounter in the text. There are three steps involved in this. In the experience step, the teacher leads the students to discuss their own knowledge about the topic of the text and activate their schemata. In the text step, students read part of the text and during reading, the teacher asks them questions to direct their schemata in a correct direction. Finally, in the relationship step, the teacher helps students to make a relationship between the content of the text and their prior knowledge which was activated in the first step (experience).

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Roller and Matambo (1992) investigated the effect of background knowledge on text comprehension. The result showed that the background knowledge affected comprehension of passages. In another study about the effect of previewing and providing background knowledge on reading comprehension, Chen and Graves (1995) found that students' major problem was their lack of cultural knowledge.

Several studies have also investigated the effect of various schema types on reading comprehension. Some have focused on content schema as a culture-specific knowledge. Johnson (1981) conducted a study on two groups of readers, a group of Iranian students studying in the United States and a group of Americans. Both groups read a Mullah Nasr-el-Din story from Iranian folklore and a Buffalo Bill from American folklore. The result showed that Iranian students performed better in reading comprehension questions about Mullah Nasr-el-Din story than Buffalo Bill story. In this study, Johnson also divided Iranian students into two groups. One group read unadapted English texts of two series, one from Iranian folklore, and one from American folklore; the other group read the same story in adapted or simplified English. The result revealed that the cultural origin of the story had more effect on the comprehension of the ESL students than the level of syntactic and semantic complexity.

Carrell (1985) conducted an experimental study investigating simultaneous effects of content and formal schemata on readers' comprehension. She studied two groups of ESL students (students of Muslim and Catholic/Spanish background). The result of her study indicated that content schemata affected reading comprehension to a greater extent than formal schemata.

David and Norazit (2000) believe that narratives are the most familiar and engaging for readers. They chose a text about a Bedouin woman. The story was about polygamy, which causes a lot of problems for readers who do not have enough familiarity with this Islamic culture. The result showed that schema-building and providing adequate information for learners facilitated reading comprehension.

Formal schema has also attracted the attention of many scholars. Blau (1982) carried out a study on the effect of syntactic difficulty on learners' reading comprehension. She used three types of short texts. Version one consisted of short and simple sentences. Version two consisted of complex sentences with some clues to underlying relationships left intact, and the third version was based on complex sentences without clues. The result showed that the participants did best in answering multiple-choice questions based on the second version. Blau considered lack of vocabulary and, in general, lack of language as an important factor in her low proficiency level learners' reading comprehension. She also concluded the participants performed better on the second type of texts which were complex but with clues.

Carrell (1985, p. 727) conducted a study that demonstrated the effect of expository and narrative text instruction on ESL reading comprehension. She used Meyer's (1975) expository discourse types; comparison, causation, problem-solution and collection of descriptions. The training sessions began with no prior background and using several easy and short texts. Every session, students were made aware of the ways in which expository texts were organized, and they were also taught how to use their knowledge about the texts to improve their reading comprehension. The results revealed that teaching rhetorical organization of the texts facilitated ESL learners' reading comprehension.

Singer and Donlan (1982; cited in Carrell, 1985) found that readers can develop their comprehension of narrative prose by being taught the schema for simple stories and a strategy for applying this knowledge to the story. They taught readers a general problem-solving schema for short narratives. They then taught their students how to make general questions related to this schema. The result revealed the better performance of the experimental group, who received schema-building activity explicitly.

Carrell (1987) conducted a research on formal-schema in ESL reading by keeping the content of the text constant, and studying rhetorical organization. The result of her study showed that: (1) when both content and rhetorical forms are factors in ESL reading comprehension, content is more important than form. (2) When both form and content are unfamiliar, reading is relatively difficult.

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(3) When either form or content is unfamiliar, unfamiliar content provides more difficulty than unfamiliar form. 4) In the comprehension of the top-level episodic structure of a text and in the comprehension events sequence, rhetorical form is more important than content.

Demel (1990) investigated the effect of teaching correferential relation of pronouns on learners' reading comprehension. She holds that coreferential relations are interpretable through the relations which exist in the text. In her study, participants became familiar with anaphoric relation of pronouns. The result revealed that lack of learners' familiarity with correferential ties affects learners' comprehension. In addition, Shin (1992, p. 299) states that "text-structure knowledge helps a reader see a relationship between ideas, including hierarchical relationships between main ideas and details". She also argues that students who are reading an expository text need to find and use organizational signals and construct a mental outline of the network of ideas to comprehend the text.

Levin and Reves (1998) conducted a research on the effect of teaching unknown words on reading comprehension. They used 42 students of an advanced reading comprehension course. Participants were required to read a text and then underline the unknown words. These unknown words were classified into three types; 1) words that were not necessary for comprehension of that specific topic, 2) words the meaning of which could be guessed from the text, and 3) words that needed to be checked in a dictionary to comprehend the written text. The result showed that word treatment strategies were task-dependent. When the task of reading was global, the learners needed little attention to vocabulary because they relied mostly on their background knowledge. In contrast, when the task was close reading, the learners needed to concentrate on vocabulary, and used their bottom-up strategies.

2.3 Schema-theoretic Perspective on Listening Comprehension

A number of studies have investigated the role of schemata in listening comprehension. Shin (1992) proved that if listeners have

adequate schemata of the lecture content, they will be able to comprehend the lecture effectively. Safamanzar (1994) conducted a study on 90 male college students who studied at Air University. He used two sets of listening passages. The experimental group was provided with passages that were accompanied with context determining topic and a summary of the text which were considered as pre-listening activities, and the control group did not receive any special pre-listening activity. Safamanzar found that activating schemata had a facilitating effect on learners' listening comprehension, and that the experimental group could recall information better than the control group.

In a similar study, Shemshadi (1995) investigated the role of schema-theory on learners' listening comprehension. The participants in the experimental groups received appropriate schemata, while the participants in control groups received irrelevant information. The result revealed that schemata-building positively influenced learners' listening comprehension.

Babai (1996) investigated the effect of stereotypic schema and employing nonconventional and atypical input on listening comprehension of EFL learners at different levels of language proficiency. The findings of her study supported the positive role of schema in EFL listening comprehension.

Carrell (1998) considers culture as a significant component of content schemata. Dragon and Sherblom (2008) believe that people with different cultures have different listening styles. In their study on the effects of individualist-collectivist dimension of culture on the listening style of USA and Post-Soviet groups, it turned out that individualist cultures stimulate a large amount of action-oriented listening while collectivist cultures stimulate people-oriented listening style.

Hayati (2009) carried out a study to discover the effect of cultural knowledge on improving EFL learners' listening comprehension. He did his research on 120 pre-intermediate language learners who were randomly assigned to four groups. He provided different conditions for each group; target culture, international target culture, source culture, specific culture, and culture free. The result of his study indicated that cultural

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familiarity had a positive effect on improving EFL learners' listening comprehension.

Formal or textual schemata are our knowledge about genre, rhetorical structure of the text, and discourse. Tudor and Tuffs (1991) conducted a study on advanced level Belgian University students to investigate the effects of prior activation of text-relevant schemata on listening comprehension. They divided the students into three groups; two groups received as treatment the activation of formal or content schemata, and a control group received no treatment. They found that both experimental groups showed significant improvements in their listening comprehension. But the level of improvement in the formal schemata group was higher than that of the content group.

One of the important components of schemata is knowledge of the genre of the Text. Bell (2003) carried out a study to investigate the influence of teaching different genre-types on learners' News comprehension. According to Bell, every piece of news has a specific genre which listeners need to be familiar with in order to have a successful comprehension.

Khatibi (2006) investigated the effect of genre consciousness-raising activities on different language proficiency level learners' listening comprehension. He randomly assigned 120 participants into two experimental and control groups. The experimental group received a number of genre consciousness-raising activities. The result showed no significant interaction between consciousness-raising activities and proficiency levels of the participants. But, the overall result of his study corroborated the facilitative effect of genre consciousness-raising activities on EFL learners' listening comprehension.

Although the above-mentioned literature is far from exhaustive, it may be enough to highlight the areas of gap existing in this field. The present study aims to help resolve part of the controversy by investigating the effect of various schema building activity types on Iranian EFL learners' listening and reading comprehension.

3. Purpose of the Study

The present study aims to investigate the effects of three types of schema-building activities (content, formal, and linguistic) on Iranian learners' listening and reading comprehension skills. More specifically, it intends to answer the following research questions:

1. Are there any significant differences among the effects of various schema-building activity types on EFL learners' listening comprehension?
2. Are there any significant differences among the effects of various schema-building activity types on EFL learners' reading comprehension?

4. Method

4.1 Participants

This study was conducted with 60 female and male Elementary-level language learners who studied English in an institute in Rasht. They ranged from 15 to 27 in terms of age.

4.2 Instrumentation

The materials and data collection instruments utilized in this study included the following: One of the materials was 'New Headway'; the main course book of the institute. Other materials were chosen by considering the length and the difficulty level of the texts. Due to time constraints, short reading passages and short listening texts were selected from a variety of sources such as *Headway*, *Select Reading*, *Reading Skillfully (1)*, and *Interchange*. A total number of 27 reading texts, and 27 listening texts were chosen.

In order to determine the homogeneity of the participants, a standard general proficiency test, 'Nelson test', was used which contained 50 items in multiple-choice format. Two post-tests were also used. A listening test containing 3 listening texts and 15 multiple choice questions was administered to see the effects of three schema-building activities on learners' listening comprehension. A reading comprehension test including 3 reading

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comprehension passages and 15 multiple-choice questions was used to investigate the above-mentioned schema-building activity types on the participants' reading comprehension.

Since, the reading and listening comprehension questions were designed by the researcher based on the participants' reading and listening texts, their validity and reliability had to be established. Therefore, they were piloted along with a standard PET test. The validity indices of the listening and reading tests turned out to be .72 and .78, respectively. Using the KR-21 formula, the reliability of the listening and reading tests were estimated to be .72 and .74, respectively.

4.3 Data Collection and Analysis

Having randomly assigned the participants to experimental and control groups, to determine the homogeneity of the participants, a 50-item multiple-choice proficiency test was administered. The participants then took part in their English class for 20 sessions over a 10-week period; 10 sessions were allocated to the listening treatment and the remaining 10 sessions to the reading treatment. The treatment consisted of the three different pre-reading and pre-listening schema-building activity types:

- (a) Content schema-building activities: the content schema-building group (CG) received three short reading passages every session. To activate the participants' content schemata, the teacher asked questions about the topic of the text and let the learners have a group discussion for about five minutes for each text. The participants were also involved in culture familiarity discussion if the texts were culturally unfamiliar. After reading the passages and listening to the texts, the participants were asked to answer multiple-choice questions related to the passages to check their reading and listening comprehension.
- (b) Linguistic schema activities: the linguistic schema-building group (LG) received the same reading and listening texts, but did not have any topic familiarity discussion. Before reading and listening to each text, new words and grammatical points of

- the text were pre-taught. The learners were actively involved in grammar excises and vocabulary work as their class activity.
- (c) Formal schema activities: the members of the formal schema-building group (FG) did not have any topic familiarity discussion and pre-teaching of vocabulary and grammar. Different expository and narrative texts were taught each session. Four types of Meyer's (1975) expository discourse types adopted from Carrell (1985) were used. They consisted of description, cause-and-effect, problem-solution, and comparison. Each session ended with some reading and listening comprehension questions.
 - (d) The control group did not receive any of the above-mentioned schema building activity types; they listened to or read aloud the text, and if there were any problems with new vocabulary, the teacher would explain the meaning.

At the end of the experimental period, two post-tests were administered. To answer the research questions, two separate one-way ANOVA procedures were used, one to investigate the effect of different types of schema-building activities on L₂ reading comprehension, and the other to study the effect of the same activity types on L₂ listening comprehension.

5. Results and Discussion

5.1 Investigation of the First Question

The first research question sought to investigate the effects of various schema-building activity types on EFL learners' listening comprehension. To this end, a one-way ANOVA procedure was used. Descriptive statistics, including the mean, standard deviation, etc. are summarized in Table 1.

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Table 1: Descriptive statistics for the ANOVA on listening comprehension

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
content	15	12.66	1.71	.44	9.00	15.00
linguistic	15	11.53	1.55	.40	8.00	14.00
formal	15	11.80	2.00	.51	8.00	14.00
control	15	8.06	2.25	.58	5.00	12.00
Total	60	11.01	2.56	.33	5.00	15.00

As it can be seen in the table, the content schema group has the highest mean, followed closely by the formal schema and the linguistic schema groups. The control group has the lowest mean. The graphic representation of the results (Figure 1) shows the differences among the groups more conspicuously.

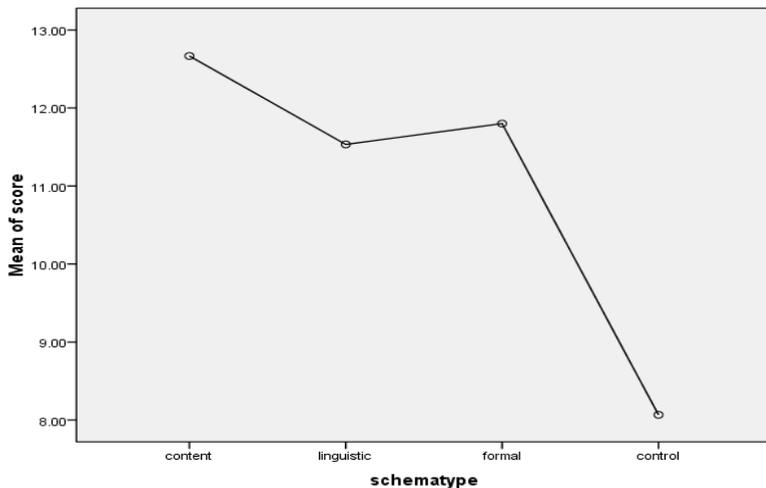


Figure 1: Performance of the participants on the listening comprehension

To see whether or not the differences among the groups are statistically significant, the one way ANOVA procedure was run. The results of the ANOVA procedure are given in Table 2.

Table 2: The result of the ANOVA procedure on listening comprehension

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	184.58	3	61.528	17.023	.000
Within Groups	202.40	56	3.614		
Total	386.98	59			

Based on Table 2, the F-value and the significance level ($F_{(3,56)} = 17.02$, $p < .05$) suggest that there are significant differences among the means of the groups. To locate the differences among the means, a post-hoc Scheffe' test procedure was run, which yielded the following results.

Table 3: Multiple comparisons of means for the learners' listening comprehension

(I) schema type	(J) schema type	Mean	Std. Error	Sig.
Difference (I-J)				
content	linguistic	1.13	.69	.453
content	formal	.86	.69	.671
content	control	4.60*	.69	.000
linguistic	formal	-.26	.69	.985
linguistic	control	3.46*	.69	.000
formal	control	3.73*	.69	.000

*. The mean difference is significant at the 0.05 level.

A look at Table 3 makes it clear that although the differences among the content, linguistic and formal schemata groups are not statistically significant, they are all significantly better than the control group.

The above result supports Safamanzar's (1994) contention that activating schemata has a facilitating effect on learners' listening

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comprehension. This finding is also in line with a number of other studies (Bell, 2003; Chen, 2005; Ruhe, 1990; Sadighi & Zare, 2006) suggesting that activating learners' background knowledge facilitates their listening comprehension. It also supports Khatibi's (2006) findings that genre consciousness-raising activities improve learners' listening comprehension. It further supports Hayati (2009), who avows that culturally-oriented language material promotes learners' listening comprehension.

On the other hand, this study contradicts the claim made by Taylor (1981) that pre-teaching of vocabulary is the least effective form of listening support. In the present study, pre-teaching of vocabulary and grammar enhanced participants' listening comprehension.

The observed discrepancy between the findings of the present study of those of the above-mentioned studies could be partially attributed to the learners' proficiency level. As it was discussed, this study used elementary level participants. But, the above-mentioned studies mostly used advanced learners. Another potential reason of discrepancy could be the number of the learners who participated in the present study.

5.2. Investigation of the Second Question

The aim of the second question was to investigate the effects of various schema-building activity types on learners' reading comprehension. To this end, another one-way ANOVA was used. Descriptive statistics are given in the following table:

Table 4: Descriptive statistics for the ANOVA on reading comprehension

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
content	15	12.20	2.042	.527	9.00	15.00
linguistic	15	11.60	1.764	.455	9.00	14.00
formal	15	12.00	1.963	.507	7.00	14.00
control	15	8.73	1.751	.452	5.00	11.00
Total	60	11.13	2.317	.299	5.00	15.00

As it can be seen from Table 4, the content schema group participants have the highest mean, followed closely by the formal schema, and the linguistic schema group. The participants of the control group have a noticeably lower mean. The graphic representation of the results (Figure 2) shows the differences among the groups more clearly.

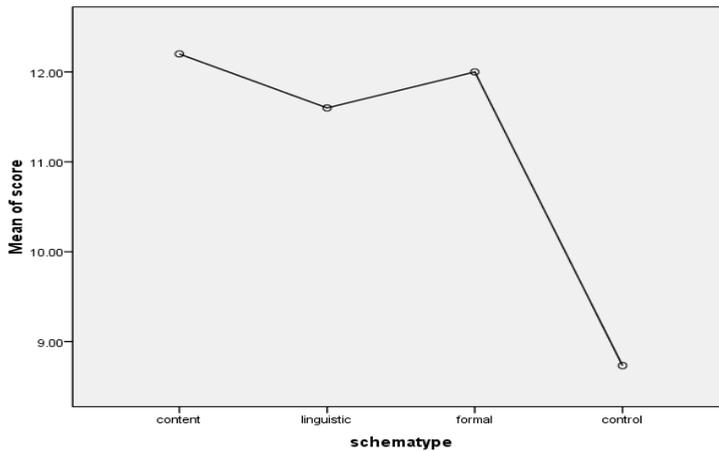


Figure 2: Performance of the participants on reading comprehension tests

In order to see whether or not the observed differences among the groups are statistically significant, another one-way ANOVA procedure was run. The results of the ANOVA procedure are given in Table 5.

Table 5: The result of the ANOVA on reading comprehension

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	118.00	3	39.33	11.07	.000
Within Groups	198.933	56	3.55		
Total	316.933	59			

In Table 5, the F-value and the significance level ($F_{(3,56)} = 11.07$, $p < .05$) show that there are significant differences among the

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groups. To locate the differences between the groups, a post-hoc Scheffe' test procedure was used, which yielded the following results summarized in Table 6.

Table 6: Multiple comparisons of means on reading comprehension

schema type (I)	schema type (J)	Mean Difference (I-J)	Std. Error	Sig.
content	linguistic	.600	.68	.859
content	formal	.200	.68	.994
content	control	3.46 [*]	.68	.000
linguistic	formal	-.400	.68	.952
linguistic	control	2.86 [*]	.68	.002
formal	control	3.26 [*]	.68	.000

*. The mean difference is at the 0.05 level. Significant

A look at Table 6 makes it clear that although the differences among the content, formal, and linguistic schema groups are not statistically significant, they are all significantly better than the control group. Therefore, it can be claimed that schema-building activity types have positive effect on EFL learners' listening and reading comprehension. This means that whichever schema-building activity type is used, it can improve listening and reading comprehension. These results support Johnson (1981), who suggests that culture plays an important role in the comprehension of a reading text. Although the present study considered culture-specific instruction as a factor in content schema-building activity, it did not investigate this factor as a separate variable. In addition, this study supports Taglieber et al.'s (1988) contention that pre-reading activities facilitate EFL learners' reading comprehension. But, they concluded that vocabulary pre-teaching was less effective than prequestioning and pictorial context. Moreover, although the group receiving linguistic schema (of which vocabulary pre-teaching is a part) achieved the lowest mean compared to the other schema-building activity types, the present study showed that

vocabulary pre-teaching was an effective pre-reading activity. This contradicts Johnson's (1982) claim that pre-teaching of vocabulary does not affect learners' reading comprehension.

Furthermore, this study corroborates the results of Carrell (1985) that explicit teaching of text structure facilitates reading comprehension. It also supports Carrell and Eisterhold's (1983) contention that providing background information and previewing are important for less proficient learners. The findings of the present study also confirm those of Carrell (1987) that content and formal schemata are two important factors in reading comprehension. But, it does not confirm Carrell's statement that content schemata are more important than formal schemata. Based on the findings of the present study, there was no significant difference between content and formal schemata. In contrast, Tudor and Tuff (1991) claim that formal schemata are more important than content schemata.

The observed discrepancy between the findings of the present study and those of the above-mentioned studies could be partially attributed to participants' level of language proficiency. Moreover, most of the above-mentioned studies were conducted on ESL learners with different cultural and linguistic backgrounds. So, cultural differences might account for part of the differences between the results of this study and that of other similar studies.

6. Conclusion

The findings of this study suggest that schema building activities, regardless of their type, are conducive to improving listening and reading comprehension in an EFL context. These findings seem to lend direct support to the schema theory, based on which comprehension (whether oral or written) happens only when a link is established between the newly incoming information and the already existing background (schemata). It can be concluded that anything that helps to build up the background of the learners (in terms of content knowledge, linguistic knowledge, or cultural awareness) can be effective on their listening and reading comprehension. More generally speaking, these findings also support the more general concept of top-down reading (and

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listening). Based on the top-down approach, comprehension is not a function of the text; it is a function of the interpretation that readers/listeners put on the text. In other words, meaning does not reside in the text; it resides in the mind of the listener/reader. That is why different people can read or listen to the same text and understand it differently depending on their own personal background of language and world knowledge. It goes without saying that schema building activities are effective on listening and reading comprehension simply because they strengthen the background knowledge of the learners.

The findings of the present study can have theoretical as well as pedagogical implications for teachers, learners, and materials developers. Theoretically, the findings of this study can help scholars develop a clearer understanding of the nature of listening/reading comprehension. Practically, teachers can make use of the findings of this study to make more informed decisions about the kind of activities to engage their learners in. They can engage the learners in the more productive and effective schema building activities rather than the traditional bottom-up activities. Learners may also be incorporate more of these schema building activities into their self study habits. Materials developers may also act as agents of change if they include more schema building activities in their course books to encourage teachers and students to pay more attention to such activities.

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