چکیده
این پژوهش نشان داد که پاره‌ای از مشکلات انگلیسی آموزان ناشی از دانش پیشین ناکافی آنان است. هدف پژوهش این بود که اثر توانمندی ساختار و محتوای متن در درک خواندن بررسی کند. فرضیه‌ها عبارت بود از: الف) آشنایی با حوزه محتوایی متن خواندن، درک آنها آسان نمی‌باشد، ب) انحراف از ساختار منطقی متن، درک آن ممکن است به ندرت باشد. نتایج نشان داد که با تعداد متن‌ها، درک با درک ساختاری در کنار ساختاری دیگر تاثیر دارد. به سخن دیگر، وجود و یا عدم وجود دانش محتوایی در درک خواندن تأثیر مثبت دارد.
The Effect of Content and Formal Schemata on Reading Comprehension

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ABSTRACT

This study suggests that some of EFL learners’ apparently reading problems are due to insufficient background knowledge. The research aimed at investigating the combined effect of content and formal structure of passages on reading comprehension. The hypotheses were: a) Familiarity with the content area of reading passages improves comprehension; b) Violation of the formal rhetorical structure of reading passages impedes comprehension. The sample of the study composed of 60 upper-intermediate students majoring in English translation or literature. They read and answered questions on texts which were either familiar or unfamiliar to them in terms of their cultural background and rhetorical format. The result of a two-way ANOVA on readers’ scores on the questions revealed that content schemata influenced reading achievement to a greater extent than formal schemata. That is, the existence or absence of specific content schemata affected comprehension and inference-making ability.

Key words: 1. Content schemata  2. Formal schemata  3. Rhetorical format  4. Interactive model

1. Introduction

It has been a common assumption in the related literature that knowledge of the world is a basis for discourse comprehension. In fact every writer/speaker can take for granted a kind of predictable information his reader/listener has access to. Certain elements are supposed to be present in the readers’/listeners’ mind even when they are not mentioned. While reading, the readers normally try to interpret the text based on their expectations of what usually happens. Such expectations have been formed through the individual’s experiences of the world. According to Brown and Yule (1983:236), “Understanding discourse is, ...essentially a process of retrieving stored information from memory and relating it to the encountered discourse.” So, the reader is assumed to bring meaning to the text and to contribute to the reading process by relying on his knowledge of the world and previous experiences with language learning. Emmott (1997) believes that the interplay between the stored knowledge and the text is a natural part of reading. Renkema (1993: 16) points out, “It is a fascinating phenomenon that discourse often calls up knowledge that can influence the reading or listening process. This knowledge, which the reader or listener already has in mind, is called prior knowledge”

Many attempts have been made to describe what takes place in the process of comprehending written messages. Models of reading process have evolved from passive,
active, to interactive (Siberstein, N.D.). Goodman (1971) proposes a model in which reading is viewed as a ‘psycholinguistic guessing game.’ Based on this model, in order to understand a text, the reader has to reconstruct the meaning intended by the author who is done through sampling, predicting, testing and confirming or revising the predictions.

The schema-theoretic model is another interactive model of reading. This theory, Cook (1997) explains, suggests that individuals understand new experiences in their lives by activating the relevant schemata in their minds. The new information received is supposed to be consistent with the reader’s/listener’s schematic representation. “Schematic processing,” he suggests, “allows people to interpret new experiences quickly and economically, making intelligent guesses as to what is likely to happen, even before they have explicit evidence” (P. 87). Schema theory points out that schematic knowledge is just as important as linguistic knowledge for successful communication to take place. According to Nunan (1989), schema theory is the theory of comprehension which is based on mental structures which store our knowledge.

Carrell and Eisterhold (1983) describe the theory’s basic tenet by observing that the text does not carry meaning by itself. Rather, it provides the readers with clues as to how they should ‘retrieve or construct’ meaning with the help of their previous background knowledge, which is a basic requirement of efficient comprehension.

Research on the processing of written text has focused particularly on the general knowledge (schemata) and information about typical text structures (e.g. story schemata). Carrell (1984) was the first to draw a distinction between content and formal schemata. In a later article, she clarifies the distinction:

One type of schema, or background knowledge, a reader brings to a text as content schema, which is knowledge relative to the content domain of the text. Another type is a formal schema, or knowledge relative to the formal, rhetorical organizational structure of different types of texts (1983: 1).

Carrell and Eisterhold (1983) expand on the concept of content schemata and that of the formal schemata. Examples of formal schemata are differences in genre, differences in the structure of fables, simple stories, scientific texts, newspaper articles, poetry, etc. The simple story schema, for instance, includes information the story should have, minimally, a setting, a beginning, a development and an ending. We could also distinguish between causally and temporally connected stories. Correspondingly, examples of content schemata are claimed to be background knowledge about the content area of a text. It could be knowledge of a text on driving regulations, the economy of a country, or the history of England.

A number of studies in the field have aimed at investigating the effect of one type of schema, with the other type being kept constant. Carrell (1992) compared the recall protocols by ESL Japanese and Chinese students of folktales which she had taken from three various cultural sources: native culture, second culture, and unknown culture. She found that the cultural origin of the text and the subjects’ prior familiarity or unfamiliarity with the culture influenced their recall of the text as well as their judgement of the difficulty level of the text.

Johnson (1981) surveyed the effects of the language complexity and the culturally determined background of a text on reading comprehension. Her finding suggested that the level of syntactic and semantic complexity of an English language text had a lesser effect than did the cultural origin of the text on the reading comprehension of foreign language learners. The study displayed strong evidence of cultural content schemata.

Floyd and Carrell (1987) conducted a study to find out whether ESL students’ reading performance can be improved by helping them to build relevant background knowledge of a topic prior to reading. They found:
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...background knowledge relevant to reading comprehension can effectively be taught in the ESL classroom, with consequential improvement in reading comprehension... cultural background knowledge is more of a determining component of reading comprehension than is syntactic complexity (P.103).

So far, the studies have aimed at surveying the possible effects of background knowledge on reading comprehension. No research has been conducted with the aim of investigating the combined effects of form and content on the reading comprehension of EFL learners. The present study, however, intends to survey the simultaneous impact of the two elements on reading and to see which one plays a more significant part when both are combined in a single task.

1.1. Research Questions
The study was concerned with the following main questions:
a. Does familiarity with the text content area affect reading comprehension?
b. Does the formal rhetorical structure of a text affect reading comprehension?

1.2. Null Hypotheses
The following null hypotheses were proposed:
a. There is no significant difference between the mean reading performance of learners when they are familiar with the text content compared to when they are not.
b. There is no significant difference between the mean reading performance of learners when the text has a familiar formal structure compared to when it has an unfamiliar one.

2. Method

2.1. Subjects
The study was conducted with upper-intermediate EFL students majoring in English Translation or literature. A total of 100 students were tested. Out of this, 60 students who met the homogeneity criteria were selected. They were homogeneous in terms of their reading proficiency. They ranged between 75 to 100 on a Michigan Test of English Reading Proficiency test. They were also culturally homogeneous, all coming from a Muslim background.

2.2. Instruments
2.2.1. Materials: Four different reading texts were used, two of which were manipulated versions of the other two. The original texts were fictionalized biographies of religious characters, one describing the events of the life of a Muslim personage and the other that of a character with Roman Catholic background. The formal rhetorical structure of the texts was historical narrative.

Each text was composed of two separate sections. The first section started with fixing the setting and introducing the main character. This section mainly revolved around the events in the earlier part of the character’s life, depicting him/her as a young person. The second section continued with narrating important events in the later part of the individual’s life and ended with his/her death.

Since the subjects participating in the study were all Iranian Muslims, it was assumed that the text on the life of the Muslim character would be familiar to them in terms of its content. On the other hand, the text about the Christian character was presumed to be unfamiliar and hence more problematic to the readers since it represented content that was inconsistent with their cultural-religious beliefs. The cultural background of the texts was supposed to be related to the reader’s content schemata.
To create new versions, the rhetorical structure of the texts was maintained. The texts were altered by leaving out events from the first part of the narrative and inserting them into the second part, and vice-versa; hence, creating a scrambled-order passage. However, a number of additional phrases were added to the altered versions to help students with time and place specifications. In other words, the readers must have been capable of recognizing the correct sequence of events in spite of the manipulations provided that they took sufficient care in reading the altered form and paid heed to the details of what was said. Thus, the new versions violated the formal schemata students had formed for historical narratives.

The formal characteristics of the two texts (both versions) were the same. They had equal length (between 250 and 257 words), the same number of T-units (18-22), the same number of clauses per T-units (1.6-1.9) and the same average number of words per T-unit (11.4-14.3). A T-unit, by definition, is an independent clause plus any dependent clause or non-clausal structure that is attached to it.

2. 2. 2. **Multiple-choice Questions**: Ten multiple-choice items were developed on each text. The items, each having four options, were designed in a way as to test the students’ knowledge of the cultural background of the texts. That is to say, the subjects were not able to answer the questions without having read the related passage. At the same time, they had to rely on their cultural-specific content schemata and make inferences to be able to find the correct option.

The test items were two purposed. They measured the subjects’ comprehension of factual information directly stated in the text as well as their comprehension of the hidden cultural meanings that had to be read between the lines.

The distractors were distortions of the cultural points in the texts. It was assumed that the religious background knowledge possessed by the Muslim subjects would facilitate their understanding of the text about the Muslim character. By the same token, their religious background was assumed to interfere with their comprehension of the Christian Catholic text. Hence, the readers would inappropriately generalize their own religious knowledge to the text based on diverse schematic assumptions.

2. 3. **Procedures**

The population samples were randomly assigned to four groups. Two groups read the well-organized texts on the two topics while the other two groups read the scrambled versions. Having been given the passage, the subjects were instructed to read it carefully so that they could understand it. They were allowed to read the text as they considered necessary and at their own reading rate. They were, then, to choose the item they thought best completed the sentence and mark it on the answer sheet.

3. **Data Analysis**

The raw data, consisting of answers to a set of multiple-choice questions, were processed. A two-way ANOVA was conducted on the subjects’ scores for the main effects of content, form and the interaction of content and form (see the Table). The results suggested that content was a determining factor in the reading comprehension of the students. The observed value (107.634) exceeded the F critical value (4.02). Hence, the first null hypothesis was rejected at the 0.05 level of significance. However, no significant effect was obtained for the variable form. The observed value (.931) did not exceed the F critical (4.02)(see the Table). Therefore the second null hypothesis could not be rejected with this level of confidence.

As noted above, content appeared to have a key role in comprehension and inference-making abilities of the subjects. It indicated that while reading passages with an
unfamiliar content, the readers would not be able to select the culturally appropriate answers to the multiple-choice items insofar as they had to make inferences on the basis of their background knowledge. This required that the subjects read between the lines and rely on their religious schemata to find answers not directly stated in the text.

Table 1: ANOVA / Variable RC by Content and Form

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>D.F.</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content</td>
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<td>123.267</td>
<td>123.267</td>
<td>107.634</td>
</tr>
<tr>
<td>Form</td>
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<td>1.067</td>
<td>1.067</td>
<td>0.931</td>
</tr>
<tr>
<td>2-way Interactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content Form</td>
<td>1</td>
<td>3.267</td>
<td>3.267</td>
<td>2.852</td>
</tr>
</tbody>
</table>

4. Conclusions

The study examined the role of schemata in the reading comprehension of nonnative speakers of English. It highlights the importance of content of passages selected for readers who are at the early or middle stages of their language learning process. It has been found that the existence or absence of specific content schemata influences comprehension and inference making ability. The greater the background knowledge a reader has of a text’s content area, the better will the reader comprehend that text. Much of the content is lost or is inaccessible to readers unless they are very familiar with the text’s cultural presuppositions.

If the content schema intended by the author does not exist, the reader will have to draw on his native cultural background which might lead him to come to inappropriate conclusions, make incorrect inferences or inaccurately activate schemata that are not needed for the task. Even if cultural interference does not take place, the reader will fail to understand or make the necessary connections between certain elements in the text in which case the purpose of reading is not met.

Meanwhile, it was observed that violation of formal structure of passages did not affect comprehension. As noted earlier, the altered versions of texts were fair in so far as they contained a number of additional words and phrases. This suggests that given sufficient care in reading, the subjects could arrive at the correct sequence of events.

In summary, of the two variables content and form, content proved to play a more key part in the subjects’ reading comprehension. Texts with familiar content were easier to read than those with unfamiliar content area.

5. Implications

This study confirms the influence of cross-cultural schemata on reading comprehension. Specific content area material can be difficult to EFL readers if they have to struggle both with the language and the content. Lack of proper cultural schema may force readers to distort meaning by relying on concepts from their native culture. The role interference may play in a comprehension process must not be overlooked. Incorrect generalizations from one’s own culture to the target culture are an impediment to optimum comprehension. This shed more light on the significant role played by teachers, publishers, material and test developers.

Material developers are well advised to have a comprehensive knowledge store about the students’ background and the target culture and utilize this information in preparation of textbooks. Also, test constructors have to bear in mind that using texts
with heavy cultural loadings will be counterproductive and will tend to assess the
readers' cultural information instead of their reading proficiency.

Language teachers have access to a rich source of diverse reading materials. Taking
to classes texts with an unreasonably large cultural scope would not only affect
comprehension, but it may also be harmful to students' interests in terms of their cultural
presuppositions or the cultural-loaded concepts have to be clarified for the readers.
Teachers must consider the importance of previously acquired knowledge in learning
new concepts or forming new schema. This is particularly important in situations where
students have to learn from what they read. In these contexts reading is not aimed at
understanding what is written but learning it. This has implications for ESP contexts
where students' poor performance on linguistics, literature, economics or chemistry is
attributed to their language deficiencies rather than that of discipline-specific knowledge.
Several organized methods have been recommended to develop reading through
activation of previous information.

Schema activation takes on more significance when the use of authentic materials
comes into play, for example, newspapers, brochures, advertisements and original
unsimplified stories written specially for native speakers of the language. While using
such authentic material—which is highly recommended in language teaching circles
today—the teachers must keep in mind the following questions: For what purpose is the
text written and who is the original readership? What presuppositions are readers
assumed to possess and to bring to the text? What are the possible ways of transferring
this knowledge to the specific readers in question? What benefits could learners probably
gain from the text?

There are also implications for the students themselves. They must be aware that
content is of primary importance in a reading task. They must be informed of the role of
previous information while encountering a new text and how it can help them overcome
a lot of their reading problems. Learners must be encouraged to search for meaning and
to find out more about similarities and differences among cultures. The students should
also note that different genres, disciplines and cultures use different structures for the
organization of their texts and learn how to recognize and use the rhetorical organization
of a text to facilitate their comprehension.

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