THE PSYCHOLINGUISTIC SCHEMA THEORY AND ESL READING METHODOLOGY

Zhang Li
Guangdong Pharmaceutical University

Abstract
Schema theory research has shown importance of background knowledge within a psycholinguistic model of reading. This paper gives an overview of schema theory as part of a reader-centered psycholinguistic processing model of EFL/ESL reading in which we discuss how reading comprehension involves background knowledge that goes far beyond linguistic knowledge. The process of interpretation is realized by the employment of two basic modes of information processing: bottom-up and top-down processing. Then a variety of techniques and classroom activities are suggested for accommodating this phenomenon in a reader-centered EFL/ESL reading program.

Keywords
schema theory, psycholinguistic model, background knowledge, bottom-up, top-down

Introduction
The teaching of reading ability as a subject in our college English syllabus has so far not been very successful. Traditionally, in the study of language comprehension, the emphasis has been almost exclusively on the language to be comprehended and not on the reader and other factors. In this perspective, meaning is often conceived to be “in” the text to have a separate independent existence from both the writer and the reader. Also in this view, failures to comprehend a non-defective communication are always attributed to language-specific deficits—perhaps a word was not in the reader’s vocabulary, a rule of grammar was misapplied, an anaphoric cohesive tie was improperly coordinated, and so on.

Since 1960s, EFL/ESL reading theory has come under the influence of psycholinguistics and Goodman. 1967, 1971, 1973 psycholinguistic model of reading. Goodman has described reading as a “psycholinguistic guessing game” 1967 which we can view mainly as an ongoing cyclical process of four phases: sampling from the input text predicting testing and confirming or revising those predictions and sampling further. This view is by now generally well known and widely accepted in our field.

Coady 1979 has elaborated on this basic psycholinguistic model and has suggested a model in which the EFL/ESL reader’s background knowledge interacts with conceptual abilities and process strategies to more or less successfully produce comprehension. See Figure 1.

By conceptual ability, Coady means general intellectual capacity. By process strategies, he means various subcomponents of reading ability, including many which are also more generally language processing skills: syntactic information, deep and surface lexical meaning, and contextual meaning, etc. Coady says little more about the role of background knowledge other than to observe that students with a Western background of some kind learn English faster on the average than those without such a
He also suggests that background knowledge may be able to compensate for certain syntactic deficiencies.

Figure 1 Coady 1979 Model of the ESL Reader

It is obvious that background knowledge has been the most neglected in EFL/ESL reading. Even though the psycholinguistic model of reading is seen as an interaction of factors, it has generally failed to give sufficient emphasis to the role of background knowledge. Recent research indicates that what the reader brings to the reading task is more pervasive and more powerful than the general psycholinguistic model suggests. More information is contributed by the reader than by the print on the page. The role of background knowledge in language comprehension has been formalized as schema theory. Bartlett 1932 Rumelhart Ortony 1977 Rumelhart 1980. Now let's give a brief overview of schema theory as part of a reader-centered psycholinguistic processing model of EFL/ESL reading.

The Schema Theory Model

According to schema theory, a text does not by itself carry any meaning. Rather, it only provides directions for listeners or readers as to how they should retrieve or construct meaning from their own previously acquired knowledge, which is called the reader's background knowledge, and the previously acquired knowledge structures are called schemata. Schema theory holds that comprehending a text is an interactive process between the reader, background knowledge and the text. Efficient comprehension requires the ability to relate the textual material to one's own knowledge.

According to schema theory, the process of interpretation is guided by the principle that every input is mapped against some existing schema and that all aspects of the schema must be compatible with the input information. This principle results in two basic modes of information processing: called bottom-up and top-down processing. Bottom-up processing is evoked by the incoming data, the features of data enter the system through the best fitting bottom-level schemata. Schemata are hierarchically organized from most general at the top to most specific at the bottom. As these bottom-level schemata converge into higher level more general schemata, these too become activated. Bottom-up processing is therefore called data-driven. Top-down processing on the other hand occurs as the system makes general predictions based on higher level general schemata and then searches the input for information to fit into these partially satisfied higher order schemata. Top-down processing is therefore called conceptually driven.

An important aspect of top-down and bottom-up processing is that both should be occurring at all levels simultaneously. Rumelhart 1980. Bottom-up processing ensures that the readers will be sensitive to information that is novel or that does not fit their ongoing hypotheses about the content or structure of the text. Top-down processing helps the readers to resolve ambiguities or to select between alternative possible interpretations of the incoming data.

To illustrate the effects of background knowledge, schematic interpretation, and the simultaneity of top-down and bottom-up processing, let us now consider a text from Rumelhart.

Mary heard the ice cream man coming down the street. She remembered her birthday money and rushed into the house.
Upon reading just these few lines, most readers are able to construct a rather complete interpretation of the text. Presumably Mary is a little girl who heard the ice cream man coming and wanted to buy some ice cream. Then she remembered her birthday money which was in the house. So she hurried into the house to try to get the money before the ice cream man arrived. Of course the text does not say all of this. We readers are refining a lot of this in giving the text an interpretation. Other interpretations are also possible. Yet most readers will probably retain the above interpretation unless some contradictory information is encountered. Notice what happens if the reader next encounters the phrase

and locked the door.

The reader is unable to fit this new piece of textual information into the developing interpretation. The reader is forced to revise the interpretation in such a way as to make the new information compatible with the previous information—to make the whole text coherent. Perhaps we infer that for some reason Mary is afraid that the ice cream man might steal her birthday money and that she locks the door to protect it and herself.

Naturally, if there were no such thing as schemata guiding the developing interpretation in a top-down processing mode causing the reader to make conceptual predictions about the meaning of the text, then why would encountering the added phrase cause the reaction it does in the reader? So what has happened? We claim that as long as the incoming information being processed through bottom-up processing and the conceptual predictions being made through top-down processing are compatible, we have a satisfactory interpretation of the text. When any mismatch occurs between the two, we have to revise the interpretation to make them compatible once again.

The above mentioned example vividly demonstrates the existence and operation of schemata in the process of text interpretation. A reader’s failure to activate an appropriate schema during reading results mostly in a mismatch between what the writer anticipates the reader can do to extract meaning from the text and what the reader is actually able to do. One of the most obvious reasons for this mismatch is that the schemata are culturally specific and is not part of a particular reader’s cultural background. In view of the limited space of the article, let us discuss in more detail the effects of this cultural-specific background knowledge on the reading process in a separate essay.

Teacher Role in Classroom

According to psycholinguistic model of reading, an immediate goal as EFL/ESL reading teachers is to minimize reading difficulties and to maximize comprehension by providing culturally relevant information. Since no author can compensate for the individual variation among readers—especially readers from different cultural backgrounds—this is one of the roles of the teacher in the EFL/ESL reading classroom. As teachers we can approach this problem by manipulating either one of the two variables—the text and/or the reader.

One way to minimize interference from the text is to encourage narrow reading as suggested by Krashen (1981). Narrow reading refers to reading that is confined to a single topic or to the texts of a single author. Reading teachers usually provide short and varied selections which never allow students to adjust to an author’s style to become familiar with the specialized vocabulary of the topic or to develop enough contexts to facilitate comprehension. Rather, such selections force students to move from frustration to frustration. However, narrow reading provides students with the chance to easily adjust either to the repeated vocabulary of a particular topic or to the particular style of a writer. Furthermore, repetitions of vocabulary and structure mean that review is built into the reading. The significant advantage from the schematic-theoretic point of view is that schemata are repeatedly accessed and further expanded and refined, resulting in increased comprehension.

Another possibility of text facilitation is to develop materials with local settings. These materials might be local newspapers, pamphlets, brochures, or booklets about local places of interest. For instance, for Chinese readers.

Instead of—or in addition to—text control, we also need to consider what we can do with the readers.
themselves. Providing background information and previewing content for the reader seem to be the most obvious strategies for the language teacher. Of course, they are particularly important for the less proficient language students. These readers are more word-bound and meaning tends to breakdown at the word level. Thus, they tend to have vocabulary acquisition emphasized and as such, are encouraged to do a lot of specific and less efficient word-by-word processing exclusively in a bottom-up processing mode. Readers who are more proficient in a language tend to receive content previews because they are no longer as susceptible to vocabulary and structure difficulties in reading. As a result, they are encouraged to do more global-predictive and certainly more efficient processing in the top-down processing mode.

Conclusion

In achieving our immediate goals in the EFL/ESL reading classroom, we must strive for an optimum balance between the background knowledge presupposed by the texts our students read and the background knowledge our students possess. This balance, as we have shown above, may be achieved by manipulating either the text and/or the reader variable.

Of course, our long-range goal as reading teachers is to develop independent readers outside the EFL/ESL classroom. Readers whose purpose is to learn from the text they read. Every background knowledge interference problem dealt with the classroom presents an opportunity to build new appropriate schemata that will be available to the student outside the classroom. In addition, and possibly more importantly, the process of identifying and dealing with cultural interference in reading should make our EFL/ESL students more sensitive to such interference when they read on their own. By using the classroom activities and techniques we have described, our readers should become more aware that reading is a highly interactive process between themselves and their prior background knowledge on the one hand and the text itself on the other.

References


