

The Importance of Background Knowledge as a Factor in Second Language Reading Comprehension

by Teresa Cox

Introduction

When preparing or selecting suitable reading materials for students of English as a foreign or second language, instructors must first try to determine what factors contribute to making a text difficult or easy for a given reader to understand. Our ideas about what these factors are depend on our concept or model of what takes place during that extremely complex process which we call reading. Our definitions of “readability” and emphasis on certain individual factors as key components of comprehension have changed as different models of the reading process have gained wide acceptance by those of us in the field of EFL / ESL teaching.

The traditional “bottom-up” approach to reading emphasized the process of decoding the graphic and phonetic system of English as the key to reading comprehension. In this model, vocabulary and sentence structure were also thought to be important factors in the larger picture of comprehension, as individual words were understood and then grouped into larger bits or “chunks” of phrases and sentences.

Later, the “top-down” model of reading implied that the reader’s expectations of the material played the most important role. Reading was a “psycho-linguistic guessing game,” a process of predicting, and then confirming or discarding those predictions by “sampling” the text. ¹

The “interactive” theory of reading developed as a result of shortcomings in the two previous models. Although we still do not understand precisely what takes place when a person reads in either his first language or in a foreign language, because we can’t actually get “inside” the brain to monitor the process, recent research indicates that elements of both the “bottom-up” and “top down” processes seem to be occurring almost simultaneously during reading, and that these processes interact and work together to produce what we call “comprehension.”

Additionally, schema theory and related research suggest that an individual reader’s “schema,” or existing background knowledge structures, may have a great effect on how

well that reader is able to understand and recall a given text. This means that we must consider the individual reader as well as the text when trying to anticipate potential sources of difficulty in a reading text.

In this article, I would like to review some of the many text-based factors which may affect comprehension for ESL / EFL readers, using the concept of “information load” as a framework for approaching the problem of readability. I will then consider the importance of reader background knowledge, and discuss some of the insights which can be gained from the application of schema theory. Lastly, I will summarize the implications for instructors and writers of EFL reading materials. It will be argued that, when preparing or selecting readings for a particular group of EFL / ESL readers, the existing background knowledge of the target readers should be considered as well as the text itself. In some cases, pre-reading activities may be useful to prepare readers if there seem to be major gaps in cultural or background knowledge, just as teachers have traditionally attempted to pre-teach structural or vocabulary elements.

The Reading Process and the Concept of Information Load

One way of looking at the potential sources of difficulty in a given reading is to consider the amount and density of the information, particularly new information, found in the text. This “text information load” includes semantic, discourse, and linguistic elements — the facts and ideas, the rhetorical organization, and the language and the graphic code of a text.

According to schema theory, the functional information load for a given reader will depend on the interaction between the reader’s prior background knowledge and the linguistic, rhetorical, and semantic contents of the specific text itself. The reader’s prior knowledge affects both the way in which the information in the text is processed, and how much is understood and remembered. In fact, recent research indicates that the reader’s general background knowledge may be more important to comprehension than linguistic knowledge. ²

Reading, even in one’s native language, is a particularly complex and demanding mental activity, involving the simultaneous processing of many kinds of information. The human brain is a marvelous organ, but there is a severe limit to the amount and density of information, particularly new information, which it can process and assimilate well at one time.

Because of the built-in limitations of the brain and the potential for overload,

proficient readers have learned not to try to use all of the huge amount of information on the printed page, but rather to select the most useful and productive cues needed to determine the message efficiently.³ This model explains why rapid reading rather than a word-by-word approach is so important for comprehension. Smith argues that if a word-by-word, decoding approach is used when reading, the meaning of one word may be forgotten before the next is understood, and no meaningful relationships between words will be established.⁴ For L2 readers, too many simultaneous demands during reading, involving both unfamiliar language and unfamiliar information, may overload the cognitive system and cause a breakdown in processing.⁵

In the next three sections, I would like to discuss the linguistic, rhetorical, and semantic elements of a text as sources of “information load,” and then to consider some implications of schema theory and recent reading research on the importance of background information.

Linguistic Information Load

Heavy linguistic “information load” is one source of difficulty that readers of English as a second or foreign language have when reading a text in a language they have not yet fully mastered. The ESL / EFL reader has to grapple with a lot of new information when reading just to interpret the graphic and linguistic codes of a text. The syntax and vocabulary of the new language are both potential sources of difficulty.⁶ In addition, native speakers of non-alphabetic languages such as Japanese, Chinese, or Arabic who are reading in English must contend with a different writing system.

Traditionally, these linguistic factors have been the ones most considered when determining the “readability” or level of difficulty of a text for EFL / ESL readers, and there has been much debate about whether vocabulary or syntax is a greater source of difficulty. However, recent theory and research suggest that although these factors are certainly important, the general background knowledge of a reader may in fact contribute more to comprehension than linguistic knowledge.⁷ One reason why readability formulas are not an adequate measure of text difficulty for EFL / ESL students is that these formulas fail to take into account the different cultural and world background knowledge of each reader.⁸

Organization and Rhetorical Structure of Texts

John Oller postulates that elements of experience are organized into hierarchies of sequences in our minds much the same way a text is organized.⁹ Accurate processing of discourse in speech or reading depends very much on correct anticipation of the elements of a sequence, so texts which are episodically or chronologically organized can be recalled and stored more easily by a reader. Difficulties will occur when logical structure is violated, so writers should take care to use natural, logical organizational structure, which in English is often causal or chronological. He also argues that information presented in a text should be relevant, citing Schank's assertion that material which does not carry a story forward to a logical conclusion will be easily forgotten.

Clarke and Silberstein agree that how a reading is organized affects the message, and they point out the frequent use of linear argument in English. They recommend making ESL readers aware of the various forms of organization based on comparison and contrast, generalization and specifics, chronological order, and causation.¹⁰

In further support of the close relationship between organization and readability, other researchers have pointed out that the organization of a passage may have more effect than language complexity on comprehension.¹¹ According to schema theory, skilled readers have a finite number of "formal schemata" — background knowledge structures — related to text organization. They use this prior knowledge of conventional organization when approaching a text, choosing the formal schema from their repertoire which seems most suitable. One study suggests that more tightly organized types of expository writing — such as comparison, causation, and problem / solution — tend to facilitate recall more than a loosely organized collection of descriptions.¹² Differences in rhetorical patterns used in the reader's native language and in English may also affect comprehension; there may sometimes even be a sort of rhetorical interference from the first language.¹³

In a recent study, Carrell concluded that in general, content was more important than form in determining the difficulty of a reading for the ESL readers studied, but that form was more important in the recall of episodes.¹⁴ A reading with unfamiliar content but familiar form was more difficult to understand and recall than a reading with familiar content but unfamiliar, non-sequential form. More top level, or organizational, idea units were recalled when the form or rhetorical structure of a reading was familiar, but more high level, or main, ideas from the reading were recalled when content was familiar. Readers had trouble recalling episodes in the story correctly in the group where

form was unfamiliar (not chronologically sequenced.) A reading where both form and content were unfamiliar was hypothesized to be the most difficult.

It seems logical to conclude that writers of EFL / ESL reading materials should take care to organize well and clearly in order to facilitate comprehension of unfamiliar content. Carrell also suggests that it may be useful to teach ESL readers how texts are rhetorically organized in English, particularly when their native rhetorical patterns may be different, and to give them practice in reading classes in how to use the top level organization of readings to aid comprehension.

Semantic Load and Cultural Background

Controlling vocabulary and sentence structure or using familiar rhetorical patterns in an ESL / EFL reading will not in itself be sufficient to guarantee comprehension. Since EFL / ESL readers are already burdened by heavier linguistic demands because they are reading in an imperfectly understood language, they will presumably be more susceptible to potential semantic overload caused by the amount of new information or complexity of ideas presented in a text.

One guide to graded readers claims that control of the amount of information within each sentence is the main factor in comprehension, rather than syntax or vocabulary.¹⁵ Oller also notes that an episode of a story should be cut up into small bites, or chunks, to make it more manageable or digestible.¹⁶

Carrell and Eisterhold point out that the cultural content of reading is part of the cognitive information load, and suggest that the learning load may be too heavy if low proficiency readers must deal with both linguistic and cultural codes at the same time.¹⁷ Readings on topics which are culturally “foreign” may require more reader preparation, and may be unsuitable for low proficiency EFL / ESL readers unless teaching the particular content is essential.

In addition to complexity resulting from cultural differences or lack of general background information, some topics are inherently more difficult and complex than others, and should probably be avoided for limited proficiency readers.¹⁸ For example, when writing a text about the American South intended for college students in Japan, I found it very difficult to discuss the history of relations between blacks and whites, in language I felt would be understandable to my students. This sort of topic, involving complex moral and political issues, would probably be demanding even in their native

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language. In general, a topic for beginning and intermediate EFL / ESL learners should hold the reader's attention and provide some challenge without being excessively cognitively demanding, or overwhelming because of the number of new facts presented.

Schema Theory and the Importance of General Background Knowledge

We have already considered the effect of linguistic and cultural background knowledge on reading. Recent research suggests that a reader's general knowledge of the world may play a far greater role in reading comprehension than actual linguistic knowledge.

Schema theory asserts that meaning does not come from a text itself, but rather from an interaction between the printed text and the schema already stored in the reader's mind. "Schema" are an internal organization of past experiences and include past personal experiences, cultural assumptions, and general knowledge of the world as well as linguistic knowledge. A reader uses this existing knowledge, which has been systematically catalogued and organized in the brain, to analyze, process, recall, and accept or reject new information, such as that found in a reading passage.¹⁹ Reading, then, is an active process, involving the forming of expectations, and the sampling of text to select cues which will confirm or disprove a reader's expectations.²⁰

Thus we cannot predict or explain a reader's ability to understand a text solely on the basis of linguistic knowledge. The reader's degree of familiarity with the subject is more important. For example, an auto mechanic or car aficionado will more easily be able to understand and remember an article about automobiles than will a layman with the same linguistic ability but less prior knowledge of the topic. Shared schema and vocabulary knowledge can contribute far more to comprehension than syntactic competence, as Johnson found in one study where students read about something they had actually experienced, Halloween,²¹ and in another study using adapted and unadapted texts which were culturally familiar or unfamiliar to ESL readers.²² The cultural origin of the stories or degree of familiarity with the topics had more effect on comprehension than the degree of syntactic or semantic complexity, probably because with familiar topics, readers could make intelligent guesses as to meaning based on previous knowledge, and fit information into an established framework for better recall. Johnson concluded that when reading on an unfamiliar theme from a foreign culture, where background knowledge is lacking, readers are more dependent on the language of a text, and if their language knowledge is inadequate, they may misunderstand because they are interpreting the information through the "screen of their native culture"²³

Conclusions

Schema theory and the interactive theory of reading seem to offer two practical implications for developers of EFL / ESL reading materials. The first is that readers will have more trouble understanding passages dealing with unfamiliar topics, especially if different cultural assumptions are involved, so some control of vocabulary and syntax is probably desirable along with clear rhetorical organization. The second is a result of the first: pre-reading activities should be provided before approaching unfamiliar content or culturally foreign ideas. Pre-reading activities are useful even when dealing with familiar topics and concepts, because they prepare the readers conceptually to connect the text with what they already know.²⁴ This reinforces a long held precept of teaching which predates schema theory: *begin with what is known*.

Some researchers have observed that ESL readers do not seem to take sufficient advantage of contextual or background information provided them within readings, such as titles, pictures, or general knowledge.²⁵ Therefore, it seems even more essential to provide preparatory activities for these readers in order to establish context and raise reasonable expectations prior to reading.²⁶

Notes

¹ Goodman, Kenneth S. "Reading: A Psycholinguistic Guessing Game," in Process, Theory, Research-Language and Literacy: The Selected Writings of Kenneth S. Goodman, I., ed. Frederick V. Gollasch (Boston: Routledge and Kegan, 1982), pp.33-43. See also Mark A. Clarke and Sandra Silberstein, "Toward a Realization of Psycholinguistic Principles in the ESL Reading Class," in Reading in a Second Language, ed. Ronald Mackay, Bruce Barkman, and R.R. Jordan (Rowley, Mass.: Newbury House, 1979), pp. 48-65, for a description of the reading process as defined by Goodman, and discussions of the limitations of "decoding."

² This research will be discussed in more detail later in this paper. For much of the information about schema theory and the importance of background knowledge in reading comprehension, I am indebted to Patricia Johnson, "Effects on Reading Comprehension of Building Background Knowledge," TESOL Quarterly, 16(1982), p.503-516; and various articles by Patricia Carrell, including Patricia Carrell and Joan C. Eisterhold, "Schema Theory and ESL Reading Pedagogy," TESOL Quarterly, 17(1983), 553-573.

³ Mark A. Clarke and Sandra Silberstein, "Toward a Realization of Psycholinguistic Principles in the ESL Reading Class," previously cited, p.48.

⁴ Smith is cited in Patricia Johnson, "Effects on Reading Comprehension of Building Background Knowledge," in TESOL Quarterly, 16(1982), p.505. See also Frank Smith, Reading Without Nonsense (New York: Teacher's College Press, 1979).

⁵ Kyle Perkins, "Semantic Constructivity in ESL Reading Comprehension," TESOL Quarterly, 17(1983), 26.

⁶ For a more detailed discussion, see Teresa Cox, "Vocabulary and Syntax as Factors in ESL Text Readability," Soai Ronshu (Soai University Research Journal), No3 (1987), 49-59.

⁷ See Patricia Johnson, "Effects on Reading Comprehension of Building Background Knowledge," TESOL Quarterly, 16(1982), 503-516; and Patricia Carrell and Joan C. Eisterhold, "Schema Theory and ESL Reading Pedagogy," TESOL Quarterly, 17(1983), 553-573.

⁸ For information on readability formulas, and some invaluable insights into their potential shortcomings, I am indebted to a workshop by Barbara Lindsay Sosna and Elizabeth Templin, "Readability: How to Adapt and Write Reading Materials for Beginning to Intermediate Students," TESOL Twentieth Annual Convention, Anaheim, California, March 3, 1986. For further discussion, see Teresa A. Cox, "Developing Readings in American History and Culture for Japanese Junior College Students," Journal of Assumption Junior College, No13-14(March 1987), 167-199.

⁹ John W. Oller, Jr., "Story Writing Principles and ESL Teaching," TESOL Quarterly, 17(1983), 48.

¹⁰ Clarke and Silberstein, p.59.

¹¹ Patricia Johnson, "Effects on Reading Comprehension of Language Complexity and Cultural Background of a Text," TESOL Quarterly, 15(1981), 169-170.

¹² Patricia Carrell, "The Effects of Rhetorical Organization on ESL Readers," TESOL Quarterly, 18(1984), 464.

¹³ Carrell, "Effects of Rhetorical Organization," p.464; and Carrell and Eisterhold, "Schema Theory," p.561.

¹⁴ Patricia Carrell, "Interaction of Content and Formal Schemata in ESL Reading,"

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Paper presented at TESOL Twentieth Annual Convention, Anaheim, California, March 6, 1986.

¹⁵ John Milne, Heinemann Guided Readers Handbook, (London : Heinemann Educational Books, 1977), pp. ,11,15.

¹⁶ John W. Oller, Jr., "Story Writing Principles and ESL Teaching," previously cited, p.52.

¹⁷ Carrell and Eisterhold, p.567.

¹⁸ Stephen D. Krashen and Tracy D. Terrell, The Natural Approach: Language Acquisition in the Classroom (Oxford: The Alemany Press / Pergamon Press Ltd., 1983), p.132.

¹⁹ See Ilona Leki, Review of Outsiders: American Short Stories for Students of ESL, by Jean S. Mullen and Literature for Discussion: A Reader for Advanced Students of English as a Second Language by John F. Povey, in TESOL Quarterly, 18(1984), 729; and also Johnson, "Effects of Building Background Knowledge," pp.503-504.

²⁰ Clarke and Silberstein, p.49.

²¹ Johnson, "Effects of Building Background Knowledge," pp.513-514.

²² Johnson, "Effects of Language Complexity," previously cited, pp.171-181.

²³ Johnson, "Effects of Language Complexity," p.180.

²⁴ Clarke and Silberstein, p.49.

²⁵ Patricia L. Carrell and Bill Wallace, "Background Knowledge: Context and Familiarity in Reading Comprehension," in On TESOL '82: Pacific Perspectives on Language and Teaching, ed. Mark A. Clarke and Jean Handscombe (Washington D.C. : TESOL, 1983), p.305-306.

²⁶ See Teresa Bruner Cox, Readings in American History and Culture for Japanese College Students (Brattleboro, Vermont: School for International Training, 1986), pp. 40-54, for specific suggestions on developing content-focused reading exercises including pre-reading activities.