Helping ESL Students Become Better Readers: 
Schema Theory Applications and Limitations

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Schema theory describes the process by which readers combine their own background knowledge with the information in a text to comprehend that text. All readers carry different schemata (background information) and these are also often culture-specific. This is an important concept in ESL teaching, and prereading tasks are often designed to build or activate the learners’ schemata. This paper summarizes some of the research into schema theory and its applications to ESL reading. The author also highlights some of the limitations of the use of the schema-theoretic approach and points out the importance both of developing the learners’ vocabulary and of encouraging extensive reading.

Introduction

Schema theory is based on the belief that “every act of comprehension involves one’s knowledge of the world as well” (Anderson et al in Carrell and Eisterhold, 1983:73). Thus, readers develop a coherent interpretation of text through the interactive process of “combining textual information with the information a reader brings to a text” (Widdowson in Grabe 1988:56). Readers’ mental stores are termed ‘schemata’ (after Bartlett in Cook, 1997:86) and are divided (following Carrell 1983a) into two main types: ‘content schema’ (background knowledge of the world) and ‘formal schemata’ (background knowledge of rhetorical structure). Theories on the contribution of schemata to the reading process are discussed in the next section.

Schema-theoretic research highlights reader problems related to absent or alternate (often culture-specific) schemata, as well as no-activation of schemata, and even overuse of background knowledge. Carrell, Devine and Eskey (1988:4) claim that schema theory has provided numerous benefits to ESL teaching and, indeed, most current ESL textbooks attempt schema activation through prereading activities. However, there may be limits to the effectiveness of such activities and there may even have been some over-emphasis of the schema perspective and neglect of other areas (see Eskey 1988, McCarthy, 1991). Consideration is given in the latter part of the paper to the limitations of schema-theoretic applications and to the importance of ‘extensive reading.’

Schemata and the Reading Process

In the process of reading, “comprehension of a message entails drawing information from both the message and the internal schemata until sets are reconciled as a single schema or message” (Anderson et al in Hudson, 1982). It is also claimed that “the first part of a text activates a schema…which is either confirmed or disconfirmed by what follows” (Wallace, 1992), but the process begins much earlier than this: “The environment sets up powerful expectations: we are already prepared for certain genres but not for others before we open a newspaper, a scholarly journal or the box containing some machine we have just bought.” (Swales, 1990:88).

The reading process, therefore, involves identification of genre, formal structure and topic, all of which activate schemata and allow readers to comprehend the text (Swales, 1990). In this, it is assumed that readers not only possess all the relevant schemata, but also that these schemata actually are activated. Where this is not the case, then some disruption of comprehension may occur. In fact, it is likely that “there will ever be a total coincidence of schemas between writer and reader” (Wallace, 1992) such that
coherence is the property of individual readers. The following section describes some of these differences in interpretation.

**Schemata and Differences in Comprehension**

Differences between writer intention and reader comprehension is most obvious where readers have had different life experiences to the writer’s ‘model reader.’ Readers sometimes also feel that they comprehend a text, but have a different interpretation than the author (see Hudson, 1982). Humor is particularly vulnerable to misinterpretation as was discovered when a text entitled “It’s a mugger’s game in Manhattan” (Greenall & Swan, 1986) was given to advanced L2 readers (Japanese). Although the text appeared humorous to the native-speaker teacher, it was found “scary” and “shocking” by the Japanese students.

As Carrell and Eisterhold (1983) point out, “One of them most obvious reasons why a particular content schema may fail to exist for a reader is that the schema is culturally specific and is not part of a particular reader’s cultural background.” It is thought that readers’ cultures can affect everything from the way readers view reading itself, the content and formal schemata they hold, right down to their understanding of individual concepts. Some key concepts may be absent in the schemata of some non-native readers or they may carry alternate interpretations. The concept of ‘full moon’, for instance, in Europe is linked to schemata that include horror stories and madness, whereas in Japan it activates schemata for beauty and moon-viewing parties. Some alternates may be attitudinal: ‘gun’ activates both shared schemata on the nature of guns and culturally distinct attitudinal attachments to those schemata (Wallace, 1992).

For learners reading at the limits of their linguistic abilities, “if the topic…is outside of their experience or base of knowledge, they are adrift on an unknown sea” (Aebersold & Field, 1997). When faced with such unfamiliar topics, some students may overcompensate for absent schemata by reading in a slow, text-bound manner; others may overcompensate by wild guess (Carrell, 1988). Both strategies inevitably result in comprehension difficulties. Research by Johnson (in Carrell and Eisterhold, 1983) suggested that a text on a familiar topic is better recalled than a similar text on an unfamiliar topic. Swales (1990) believes that this and other research “supports the common sense expectancies that when content and form are familiar the texts will be relatively accessible.”

**Applications of Schema Theory to ESL Reading**

As described in the previous section, “some students’ apparent reading problems may be problems of insufficient background knowledge” (Carrell, 1988). Where this is thought to be topic-related, it has been suggested that ‘narrow reading’ within the student’s area of knowledge or interest may improve the situation (see Carrell & Eisterhold, 1983). Similarly, where schema deficiencies are culture-specific, it could be useful to provide local texts or texts which are developed from the readers’ own experiences.

On the other hand, Carrel and Eisterhold (1983) also suggest that “every culture-specific interference problem dealt within the classroom presents an opportunity to build new culture-specific schemata that will be available to the EFL/ESL student outside the classroom.” Thus, rather than attempting to neutralize texts, it would seem more suitable to prepare students by “helping them build background knowledge on the topic prior to reading, through appropriate prepreading activities (Carrel, 1988).

Carrell (1988) lists numerous ways in which relevant schemata may be constructed, including lectures, visual aids, demonstrations, real-life experiences, discussion, role-play, text previewing, introduction and discussion of key vocabulary, and key-word/key-concept association activities. Examples of such contextualization include, for example, showing pictures of a city before asking the students to read a text
about that city. Although helpful, these prereading activities are probably not sufficient alone and teachers will need to supply additional information.

Reading problems are not just caused by schema deficiencies, and the relevant schemata must be activated” (Carrel, 1988). In other words, readers may come to a text with prior knowledge but their schemata are not necessarily activated while reading, so “prereading activities must accomplish both goals: building new background knowledge as well as activating existing background knowledge: (Carrell, 1988). Particularly useful and popular here are questioning and ‘brainstorming.’ where learners’ general information on the topic is based on their own experience ad knowledge.

Previewing the text (particularly the title, subheading and figures) also “helps readers predict what they are going to read” and this, hopefully, activates their schemata (Aebersold & Field, 1997).

Another relevant point is that, because lower level students may have the schemata but not the linguistic skills to discuss them, in the L2, the first language could be used to access prior knowledge but teachers must introduce the relevant vocabulary during the discussion, otherwise a “schema has been activated but learning the L2 has not been facilitated” (Aebersold & Field, 1997).

Although prereading activities, such as those above, are potentially beneficial, there is evidence that their usefulness is limited.

**Limitations in the Use of Schema Theory in ESL Teaching**

**Problems with Schema Theory Applications**

Despite the current popularity of prereading activities, there may be limits to their use in ESL teaching and they may not always function as intended. Carrell & Wallace, 1988) found that giving context did not improve recall even for advanced ESL readers suggesting that their schemata were not activated. Hudson (1982) claims that, by encouraging students to use the good reader strategy of “touching as few bases as necessary,” they may “apply meaning to a text regardless of the degree to which they successfully utilize syntactic, semantic or discourse constraints.”

The reading process has famously been described as a “psycholinguistic guessing game” (Goodman in Carrel & Eisterhold, 1983) in which “efficient readers minimize dependence on visual detail” by utilizing background knowledge to make predictions and checking these against the text (Goodman, 1975). Such top-down models have unfortunately given the misleading message to teachers that ESL reading tuition is “mostly just a matter of providing [learners] with the right background knowledge…and encouraging them to make full use of that knowledge in decoding…texts” (Eskey, 1988). It is now recognized that “language is a major problem in second language reading” (Eskey, 1988).

ESL readers need “a massive receptive vocabulary that is rapidly, accurately and automatically accessed” (Grave, 1988). Carrel (1988) suggests a “parallel” approach in which vocabulary and schemata are developed by “preteaching vocabulary and background knowledge concurrently for sets of passages to be read at some later time.” Furthermore, since learners “need to see a word many times in different contexts before it is learned” (Aebersold & Field, 1997), they may need to read a great many more texts than is usually the case in reading courses.

**Extensive Reading and Intertextuality**

Encouraging students to read for pleasure is advocated by several authors (Bamford & Day, 1997; Carrell & Eisterhold, 1983; Wallace, 1992) and will hopefully lead to the kind of extensive reading learners need
to do if they are to gain any ‘automaticity’ in their word and phrase recognition abilities. “Until students read in quantity, they will not become fluent readers” (Bamford & Day, 1997, p. 7).

Sinclair (1990, p.16) claims that “in general people forget the actual language but remember the message.” The fact remains, though, that textual memory is important because texts do carry references to other texts and, although not always crucial to the overall message, these references enhance the enjoyment of the text and are often points where L2 readers’ knowledge breaks down. It is therefore vital for non-native readers to try to accomplish as much reading as possible in order to try to capture some of what native readers carry to a test: both schemata and textual memory.

Encouraging students to read for pleasure is advocated by several authors (Bamford and Day 1997; Carrell and Eisterhold 1983:85-6; Wallace 1992:68-9) and will hopefully lead to the kind of extensive reading learners need to do if they are to gain any 'automaticity' in their word and phrase recognition abilities (see Eskey and Grabe 1988:235). As Bamford and Day (1997:7) state, "until students read in quantity, they will not become fluent readers." Learners may be motivated to read extensively by being allowed to choose their own texts based on their own interests in such approaches as the reading lab approach (Stoller in Eskey and Grabe 1988:230).

Another reason for extensive reading is related to the concept of 'intertextuality' where "all texts contain traces of other texts, and frequently they cannot be readily interpreted - or at least fully appreciated - without reference to other texts" (Wallace 1992:47). McCarthy and Carter (1994:114) point out that "many common, everyday texts assume that the receiver will be able to pick up... allusions and perceive the cultural references [to deep-rooted common cultural stores of allusions, sayings, idioms etc.]." For example, an article on the death of Princess Diana (by Roxanne Roberts in The Washington Post, 14 September 1997) refers to Diana as "the face that launched a thousand tabloids" alluding to the line about the beauty of Helen of Troy from Marlowe's 'Faust' (1588): "Is this the face that launched a thousand ships?"

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**Conclusion**

It has been seen that schema-theoretic applications do not always result in improvements in comprehension, particularly where they result in insufficient attention to textual detail, or where there is an increase in schema-interference by, for example, the activation of dominant or negative schemata. Also, there is some evidence that the contextual and background information provided may not always even be utilised by the learners. However, there can be little doubt that schema theory has also positively influenced the teaching of reading and that prereading activities - building up absent schemata and activating resident schemata - can improve L2 reader comprehension in many situations. Therefore, it would seem sensible for teachers to employ such activities but not to blindly assume that the expected effect is actually occurring. In other words, teachers should take the time to verify the usefulness of the activities they use and pay attention to possible schema-interference or non-activation.

Finally, basic bottom-up processing must not be ignored and the importance of a lexico-grammatical focus, particularly in the early stages of learning, needs to be recognised. L2 readers require training in the skill of rapid recognition of large numbers of words and structures in order to accomplish the
objective of reading extensively enough to build and improve the schemata they need for fuller enjoyment
of the texts they read.

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Follow Up Questions:
1. Schema theory can be described as everything a reader brings to the text: knowledge, opinions, experiences, emotions, etc. ESL teachers have long been in the process of ‘activating schema’ before reading a text to set the stage for reading and to make it more accessible.

   What kinds of activities do you and your colleagues do to activate schema? In other words, what do you do BEFORE reading to help readers understand a text more easily?

2. This article claims that oftentimes schemata are culturally-bound. The author submits that the concept of a ‘full moon’ in Europe brings up mental images of horror stories and madness, whereas in Japan it signifies beauty.

   Can you think of examples from your teaching experience when texts or schema-building tasks resulted in the discoveries of such varying mental associations?

3. The article suggests that one application of schema theory is not only to activate the schema that learners already ‘own,’ but to capitalize on unfamiliar topics or texts as times when we can BUILD learners’ schema about their adopted culture.

   Consider your own learners. What are some ‘gaps’ in their cultural knowledge or understanding where related readings and subsequent schema building activities may be excellent ‘learning moments’?

4. This research brief touches on the idea that schema theory has perhaps been over-applied, to the detriment of bottom-up/decoding strategies. Many literacy researchers today advocate a ‘balanced approach’ that nurtures both top-down and bottom-up strategies.

   What is your reaction to this issue? How do you address it in your classroom?
5. The author firmly believes that the more one reads, the better one gets at it. He claims that encouraging such reading helps build automaticity, builds schema, and increases motivation to read. This idea of ‘extensive reading’ has been embraced by some educators and programs, but not all.

What is the role of extensive reading in your classroom?

The author claims that through extensive reading, non-native readers can attempt to build the same schema that native readers carry. Do you think this is realistic for your learners? Why or why not?

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