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 learner's schemata. This paper summarises 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 learner's 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 schemata' (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 non-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 1988:93; McCarthy 1991:168). 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 1982:187). It is also claimed that "the first part of a text activates a schema... which is either confirmed or disconfirmed by what follows" (Wallace 1992:33) 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 1990:89). 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 never be a total coincidence of schemas between writer and reader" (Wallace 1992:82) 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 to the author (see Hudson 1982:187). Humour is particularly vulnerable to misinterpretation as was discovered when a text entitled 'It's a mugger's game in Manhattan' (Greenall and Swan 1986:197-8) 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 (1983:80) point out, "one of the 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 (such as 'lottery' in Carrell and Eisterhold 1983:87) 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 (for ordinary people not werewolves!). Some alternates may be attitudinal: 'gun' activates both shared schemata on the nature of guns and culturally distinct attitudinal attachments to those schemata (Wallace 1992:35-6).

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 and Field 1997:41). When faced with such unfamiliar topics, some students may overcompensate for absent schemata by reading in a slow, text-bound manner; other students may overcompensate by wild guessing (Carrell 1988a:101). Both strategies inevitably result in comprehension difficulties. Research by Johnson (in Carrell and Eisterhold 1983:80) suggested that a text on a familiar topic is better recalled than a similar text on an unfamiliar topic. Swales (1990:87) believes that this and other research "supports the common sense expectancies that when content and form are familiar the texts will be relatively accessible."

Some of the applications of schema theory to the teaching of reading are summarised next.

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 1988b:245). 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 and Eisterhold 1983:86). 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 (op.cit.:85).

On the other hand, Carrell and Eisterhold (1983:89) also suggest that "every culture-specific interference problem dealt with in 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 neutralise texts, it would seem more suitable to prepare students by "helping them build background knowledge on the topic prior to reading, through appropriate prereading activities" (Carrell 1988b:245).

Carrell (1988b:245) 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 contextualisation include, for example, showing pictures of a city

before asking the students to read a text about that city, or playing a video clip from a film adaptation of the novel the class is about to study. 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" (Carrell 1988a:105). 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 1988b:248). Particularly useful and popular here are questioning and 'brainstorming', where learners generate information on the topic based on their own experience and knowledge (Aebersold and Field 1997: 71). For example:

> Example One
> You are going to read a passage about a woman's encounter with a bear while hiking in an American national park.
> Before reading, answer the following questions:
> (a) Do bears live in the wild in your country? What kind of bears?
> (b) How would you feel if you met a bear while hiking?
> (c) What do you think we should do if we encounter a bear in the wild?

Previewing the text (particularly the title, subheadings and figures) also "helps readers predict what they are going to read" and this, hopefully, activates their schemata (Aebersold and Field 1997:73). For example:

> Example Two
> You are going to read a passage about a man's bad experience on a camping trip in the north of England.
> Before reading, do the following exercises:
> (a) Write down five problems the man could have had when he was camping.
> (b) Look at the title of the passage and the list of words. What do you think might have happened?
> TITLE: 'Our Terrible New Year'
> WORDS (in order): holiday, happy, drove, far, camped, beautiful, night, freezing, snow, morning, engine trouble, help, no phone, ran, ice, slipped, cut, disaster

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 and Field 1997:77).

Although prereading activities, such as those above, are potentially beneficial, there is evidence that their usefulness is limited. This is discussed in more detail below.

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 (in Carrell 1988a:105-6) found that giving context did not improve recall even for advanced ESL readers suggesting that their schemata were not activated. Hudson (1982:186) 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

Carrell and Eisterhold 1983:74) in which "efficient readers minimize dependence on visual detail" by utilising background knowledge to make predictions and checking these against the text (Goodman 1975:12). 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 1988:97). It is now recognised that "language is a major problem in second language reading" (op.cit.:97).

ESL readers need "a massive receptive vocabulary that is rapidly, accurately and automatically accessed" (Grabe 1988:63). Carrell (1988b:244) 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 and Field 1997:139), they may need to read a great many more texts than is usually the case in reading courses. This so-called 'extensive' reading (after Palmer in Bamford and Day 1997:6) is discussed next.

Extensive Reading and Intertextuality

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?"

Sinclair (1990:16) 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 text: both schemata and textual memory.

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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