

Reading in a Foreign Language: Research and Pedagogy

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This article, which originated as the author's plenary address to the 1989 JALT Conference in Okayama, Japan, surveys recent research in second or foreign language reading, especially that research conducted within the context of schema theory, and discusses the implications and applications of that research to classroom reading pedagogy. After an introduction to schema theory and its conceptualization of the reading process as an interaction of text-based and reader-based processes, the author discusses schema-theoretic reading research first from the perspective of content schemata, and then formal schemata, and then the interaction of the two types of schemata. Within each type of schemata, effects studies (showing the effects on second or foreign language reading comprehension of content and formal schemata) as well as training studies (showing the facilitation of second or foreign language reading by training the appropriate content and formal schemata) are reviewed. The author covers her own research, as well as that of others.

The second part of the article discusses the teaching implications and applications of the research to second or foreign language reading classrooms. Prereading activities, semantic mapping, "name-brand" reading methods, dialogue journals, the reading laboratory approach, content-centered approaches, text-mapping, and rhetorical approaches to reading are discussed.

外国語教育における読解：理論と実際

本論文は、1989年に岡山で開かれた全国語学教育学会の全国大会での講演原稿に基づくものであり、最近の第二言語もしくは外国語教育としての読解指導のうち、特に、スキーマ理論 (schema theory) の研究を中心に、その実践的な含みと教育現場への応用につき概観し、論ずるものである。本理論 (schema theory) につき概説し、読解過程における読み手の言語的、経験的な知識の相互作用に関しての概念的な側面を紹介した後、まず、テキストの提供する話題の種類と、その構文の種類に関してそれぞれ取り上げ、さらに両者の読解への相互作用に関する研究について論及する。また、(テキストの内容・話題とその構成・構文につ

いての知識が、第二言語もしくは外国語教育としての読解能力をいかに左右し得るものなのかといったことについての)研究及び、(両領域の適切な指導により、いかに学生が上達し得るかといったことを示す)訓練に関する研究についても、それぞれ、著者のみならず、他者の研究も取り上げ、概観する。

本論文の後半では、以上の概念が、第二言語もしくは外国語教育としての読解の授業にどのような示唆を与えるものであり、いかの実践的に応用し、活用し得るものであるか、といったことについて検討する。読解前の学習活動のいろいろ、意味連想作図法 (semantic mapping)、有名な読解指導諸方式 (“name-brand” reading methods)、教師—生徒問答交換法 (dialog journals)、図書カード読解方式 (the reading laboratory approach)、特定話題集中方式 (content-centered approaches)、要点抽出作図法 (text-mapping)、文章構成 (分析) 方式 (rhetorical approaches) についても検討を加える。

1. Introduction

Developments in *schema theory* since about 1977 (Adams & Collins, 1979; Anderson, 1978; Rumelhart, 1980; Rumelhart & Ortony, 1977) have had a pervasive influence on current thinking about text comprehension. Through an emphasis on the role that preexisting knowledge structures play in the mental processing of text, schema-theoretic approaches have revealed the complexities of the interactive, constructive processes necessary to comprehension (e.g., Schank & Abelson, 1977). Within a schema-theoretic framework, text comprehension—or, more specifically for the purposes of this paper, reading comprehension—is characterized as an interaction of text-based processes and knowledge-based processes, both related to the reader's existing background knowledge or schemata (Adams & Collins, 1979; Anderson, 1977; Bartlett, 1932; Rumelhart, 1977, 1980; Rumelhart & Ortony, 1977). The idea has been put succinctly by Anderson, Reynolds, Schallert, and Goetz (1977, p. 369): “Every act of comprehension involves one's knowledge of the world as well.”

In a 1983 article, Eisterhold and Carrell described how schema theory conceptualizes the interaction of text-based and knowledge-based processes, or as they are more commonly referred to, *bottom-*

up and *top-down* processing modes. This interaction of text and prior knowledge may be illustrated with the following mini-text:

Jane was invited to Jack's birthday party. She wondered if he would like a kite. She went to her room and shook her piggy-bank. It made no sound. (Charniak, 1972)

Take a moment and think about this text and the interpretation you have arrived at for it, and consider how you arrived at it. Because we do it so automatically and subconsciously, it is often difficult to make the process conscious and overt.

Upon encountering the first sentence, the incoming data presumably trigger a "birthday party" schema. The rest of the text is interpreted against that schema, which helps to flesh out the information left implicit in the text. We know that one part of the birthday party schema includes birthday presents; therefore, we assume that Jane's wondering whether Jack would like a kite is because she is trying to think of a suitable birthday present to give him, and that a kite would be a possible present. Further, from our subschema for gifts, we know that gifts are frequently purchased. Thus, we can make sense of the third sentence. Jane wants to buy Jack a birthday gift, and we know that a purchase requires money. Our schema for piggy banks tells us that this is often a place a young child saves money. (Other things about the text also suggest that Jane and Jack are young children—the names and the short sentences are typical of children's stories.) The fact that the piggy bank makes no sound, related to our knowledge that piggy banks generally contain coins and not paper money, tells us that there is probably no money in the piggy bank. Therefore, we conclude that Jane will have to solve her problem some other way. (Notice, incidentally, how many of these schemata and subschemata are potentially culturally-based, and cannot be assumed to be universal. Birthday parties may be widespread in many cultures, but we cannot conclude that every culture celebrates birthdays, or celebrates them with parties; the giving of birthday gifts may also be widespread, but need not be universal; and the buying of gifts rather than making them, or the giving of things one already possesses may also be culture-specific, or even specific to certain sub-cultures.)

As illustrated by discussion of this mini-text, schema-theory

research has shown that the most efficient processing of text is interactive—a combination of top-down and bottom-up processing modes (Rumelhart, 1977, 1980). Top-down processing is making predictions about the text based on prior experience or background knowledge, and then checking the text for confirmation or refutation of those predictions. Bottom-up processing is decoding individual linguistic units (e.g., phonemes, graphemes, words, on up to phrases and clauses) and then referring these analyzed units to one's background knowledge for confirmation of fit. Preexisting background knowledge and current predictions based on this knowledge are modified on the basis of information encountered in the text. Skilled readers constantly shift their mode of processing, accommodating to the demands of a particular text and a particular reading situation; less-skilled readers may tend to overrely on processes in one direction or the other, often producing negative effects on comprehension (Spiro, 1978, 1979).

In thinking about the interactive nature of reading between top-down and bottom-up processing modes, knowledge-based and text-based processes, it is important to bear in mind that this interaction involves all kinds of knowledge which the reader brings to the reading task. In addition to linguistic knowledge (i.e., linguistic schemata, including lexical, syntactic, semantic, as well as pragmatic knowledge), the reader also brings knowledge and beliefs about the world (i.e., content schemata) and knowledge about texts of different types and how they are typically organized or structured (i.e., formal schemata). We might also add knowledge about or beliefs about the reading process itself and personal goals in reading. The interactive nature of text processing, involving both top-down and bottom-up processes, occurs both within and across various levels of processing, from the lowest levels of feature, letter, and word recognition, to syntactic and propositional levels, to the highest, most global aspects of text and context. The interaction is not only between and across levels of processing within the reader, but also between the reader and the text—between levels of processing within the reader and the properties of the text at various levels of analysis.

In my own research, I have often found it useful to distinguish content schemata from formal schemata and to investigate the separate, distinct roles both of these kinds of knowledge play in

second language reading. I would like to make that distinction at this point, and to first discuss studies which have focused on content schemata—that is, studies which have demonstrated the effects of content schemata on second language reading comprehension, and training studies which have shown the efficacy of teaching relevant background content. Thereafter, I will turn to studies which have focused on formal schemata.

2. Content Schemata Studies

A number of second language, ESL studies have shown that prior background knowledge of the content domain of a text significantly affects reading comprehension of that text. This result has been demonstrated in particular for prior background knowledge of culture-specific text content.

The seminal study of this type was done by Steffensen, Joag-dev, and Anderson in 1979. In that study, two groups of subjects with different cultural heritages were investigated—a group of Asian Indians living in the United States and group of Americans. Each subject was asked to read and recall two personal letters, both of which were constructed with similar rhetorical organization. However, the cultural content of the two letters differed: one described a traditional Indian wedding, the other a traditional American wedding. It was assumed that all adult members of a society would have a well-developed system of background knowledge about the marriage customs of their own culture and a relative lack of knowledge about the marriage customs of more distant cultures. This is exactly what Steffensen et al. found. Although the Indian group overall read the texts more slowly and recalled less than the American group—a reflection of the fact that they were performing in English, their second language, rather than their native language—each group read the material dealing with their own cultural background faster and recalled more of the content than they did of the text from the more distant culture. Furthermore, members of the culture provided appropriate cultural elaborations; non-members provided inappropriate cultural distortions—frequently outright intrusions from their own culture. In short, the study showed a clear and profound influence of cultural content schemata on reading comprehension.

Johnson (1981) also investigated content schemata with two authentic folktales and two groups of readers—a group of Iranian students studying in the United States and a group of Americans. Both groups read a Mullah Nasr-el-Din story from Iranian folklore and a story about Buffalo Bill from American folklore. Both folktales “contained similar motifs which were culturally distinct yet were equivalent in plot construction” (p. 170). Johnson’s results were much like those of Steffensen et al.—that is, superior performance on a given text by members of the cultural group, poorer performance by non-members of the cultural group—thus clearly showing strong effects of cultural content schemata.

An interesting side aspect to the Johnson study was that she also manipulated the syntactic and semantic complexity of each text. Half of the subjects in each group read the stories in adapted or simplified English, the other half read unadapted versions of the same stories. Her results showed that the cultural origin of the story had greater effect on the comprehension of the ESL students than did the level of syntactic and semantic complexity of the text. That is, the Iranians performed better on a text from their native culture than on a text from American culture, and there were no differences in their performance on the Iranian text between the simplified and unsimplified versions. The Iranians did perform better on the simplified American text than on the unsimplified version. Johnson concluded that if ESL readers have the appropriate content schema for a text they can cope equally well with unadapted, syntactically and semantically unsimplified texts. Similar studies of content schemata have been conducted by Cabello (1984) and Haus and Levine (1985).

Some of the work on the effects of content schemata on reading comprehension has been conducted in the area of English for Specific Purposes (e.g., English for science, technology, business, or English for academic purposes). The general ideas behind this research are: first, as Widdowson (1979) has observed, different disciplines (such as physics) constitute subcultures of their own into which readers are enculturated; second, texts and modes of communicating via texts in each discipline or subculture may vary; and third, material from a familiar discipline or subculture is easier to read and understand than linguistically comparable material from a less familiar discipline (Alderson & Urquhart,

1985; Cohen, et al., 1976; Mohammed & Swales, 1984; Strother & Ulijin, 1987).

In fact, Alderson and Urquhart's work with reading English for Academic Purposes has led them to question the traditional notion behind the selection of texts for testing purposes—namely the aim of selecting texts which are sufficiently “general” in order to avoid favoring any particular group of students. Underlying this traditional position is obviously a belief that certain texts *will* favor particular groups, presumably because of the background knowledge available to them. However, Alderson and Urquhart point out that such general texts may not be appropriate measures of EFL reading comprehension. In an empirical study of English for Academic Purposes, with students from different disciplines reading discipline-specific texts as well as so-called “general” texts, they found (a) that students from a particular discipline performed better on tests based on texts taken from their own subject discipline than did students from other disciplines (that is, students appear to be advantaged by taking a test on a text in a familiar content area); (b) that students from certain disciplines found the so-called “general” texts easier than did students from other disciplines (that is, the texts were not “general” across all discipline groups, and, in fact, Alderson & Urquhart end up questioning the existence of truly “general” texts which would have to be so neutral in content and cultural/disciplinary assumptions that they would not, in some way, favor a particular group; and (c) that these “general” texts underestimated the reading ability of science and engineering students when compared to their reading ability on texts in their disciplines.

Alderson and Urquhart concluded that it is the more specialized, not the more generalized texts, which may be the best tests of a reader's EFL reading ability. For second or foreign language readers, many of whom have much more limited skills for extracting information from texts and whose second or foreign language reading skills have been developed in specific discipline contexts, they argue that inability to perform successfully on so-called “general” texts may not be indicative of their abilities on texts in their own specialities.

I am aware of only one second language, cross-cultural reading study which has investigated and shown the facilitative effects of

actually training or teaching relevant content schemata (Floyd & Carrell, 1987). This study raised the pedagogical question "Can we improve ESL students' reading comprehension by helping them to build background knowledge on the topic prior to reading?" Our results suggested an affirmative answer. We used pre- and post-tests with experimental and control groups of intermediate-level ESL students (TOEFL 400-499), half of each group receiving syntactically more complex versions of the test passages than the other half. The experimental group was taught appropriate cultural background information between the pre- and post-testing. Results showed that by providing the experimental groups of students with relevant first-hand experiential knowledge, reading comprehension—as measured both by objective multiple choice questions and by a free written recall—was facilitated. Similar to Johnson's earlier results with more advanced ESL subjects, our results with these intermediate-level ESL subjects showed that cultural background knowledge was more of a determining component of reading comprehension than was syntactic complexity. The level of syntactic complexity, in fact, had no significant effect on either way of measuring reading comprehension.

3. Formal Schemata Studies

A number of research studies have provided empirical evidence that the rhetorical organization of a text interacts with the reader's formal schema—that is, the reader's background knowledge of, and experience with, textual organization—to affect reading comprehension. This effect of text structure on reading comprehension has been shown for both narrative and expository texts. In a 1984 study (Carrell, 1984a), I investigated the effects of a simple narrative formal schema on reading in ESL. Earlier findings of Jean Mandler (1978; Johnson & Mandler, 1980; Mandler & Johnson, 1977) had demonstrated that native English-speaking children as early as the first grade have acquired a story schema and use it to organize their comprehension and recall of simple narrative stories. In fact, in her cross-cultural research with the Vai in Liberia, Mandler had suggested that such a narrative schema may be universal. In my study I found differences in the quantity and temporal sequence of ESL readers' recalls between those reading

standard versions of simple stories and those reading interleaved versions of the same stories. Quantity of recall was enhanced when the story's rhetorical organization conformed to the simple story schema—one well-structured episode followed by another. When stories violated the story schema, the quantity of recall was reduced, and the temporal sequencing of the readers' recalls tended to reflect the story schematic order rather than the temporal order of presentation in the story. These differences reflect the effects of the simple story schema on the comprehension of simple English stories by ESL readers.

In the realm of expository prose, Hinds (1983a, 1983b) has compared Japanese and English speakers reading, in their respective native languages, texts with a typical Japanese rhetorical structure. His findings show that not only is the Japanese structure generally more difficult for the English readers, but that particular aspects of that rhetorical organization are extraordinarily problematic for them, especially in delayed recall. He concludes that the traditional *ki-sho-ten ketsu* pattern of contemporary Japanese expository prose is more difficult for English readers because of its absence in English expository prose. That is, native English readers lack the appropriate formal schema against which to process the Japanese rhetorical pattern.

In another 1984 study (Carrell, 1984b), I found effects of four different English expository patterns on the reading recall of ESL readers of various language backgrounds. That study showed that the more tightly organized patterns of comparison, causation, and problem-solution generally facilitated the recall of specific ideas from a text to a greater extent than the more loosely organized collection of descriptions pattern. In this finding, ESL readers generally appeared to be similar to the native English readers tested by Bonnie Meyer and Roy Freedle (Meyer & Freedle, 1984). However, that study also found significant differences among the language groups tested (Arabic, Spanish, and "Oriental") as to which English expository patterns facilitated greater recall. For example, the Spanish group was most like the total group, finding the collection of descriptions (C of D) type of organization far less facilitative of recall than any of the other three types of organization, which were all comparable for them. The Arabic group found the causation (C/E) type the least facilitative, the compare and

contrast (C/C) type the most facilitative, while the "Oriental" group (predominantly Korean plus a few Chinese) found the causation and problem-solution (P/S) types the most facilitative, and the comparison and collection of descriptions about equally less facilitative. Urquhart (1984) and Benedetto (1984, 1985) have conducted similar studies that show the significant effects of expository text structure or organization on second language reading comprehension.

In a controlled training study (Carrell, 1985), I set out to answer the question, "Can we facilitate ESL reading by explicit teaching of text structure?" In that study we taught intermediate-level ESL students for only one week about top-level rhetorical organization using the types identified by Bonnie Meyer, C/C, C/E, P/S, C of D. The idea was to teach the students about these types of textual organization so that they could use this information as a strategy with which to organize their interactive reading of a text and, later, their recall of it. The training experiment yielded promising results, demonstrating that explicit, overt teaching about the top-level rhetorical organization of texts can facilitate ESL students' reading comprehension as measured by quantity of information recalled. Qualitative analyses showed that the teaching facilitated recall of supporting detail as well as of major topics and subtopics. In addition, the effects of the training were evident for as long as three weeks after the teaching had ended. Further, student reaction to the teaching was extremely positive. Students expressed the view that they had learned a helpful technique and they expressed more confidence in themselves as ESL readers. One very shy student said that most of his life he had hated reading because he never knew what he was looking for, but that now reading made sense to him.

4. Content Schemata versus Formal Schemata

In one final study (Carrell, 1987), I examined the simultaneous effects of both culture-specific content schemata and formal schemata. I wanted to see which was the more important in affecting reading comprehension. In that study, high-intermediate ESL students (TOEFL 450-525) read, recalled, and answered questions about each of two texts. For each of the two groups of readers—

students of Muslim and Catholic/Spanish backgrounds—one text had culturally familiar content, the other culturally unfamiliar content. The two texts used were fictionalized historical biographies, one about “Saint Catherine” and one about “Ali Affani.”

The hypothesis was that the Muslim students would be relatively familiar with the content of the Ali Affani passage, and relatively unfamiliar with the content of the Saint Catherine passage, and vice-versa, the Catholic/Spanish students would be relatively familiar with the content of the Saint Catherine passage, but relatively unfamiliar with the content of the Ali Affani passage. In addition, within each group, one half of the subjects read the texts in a familiar, well-organized rhetorical format; the other half read the texts in an unfamiliar, altered rhetorical format.

Results showed that the conditions expected to yield good reading comprehension did so—namely familiar content and familiar rhetorical form. Texts with familiar content and familiar rhetorical form were easy. Similarly, the conditions expected to yield poor reading comprehension also did so—namely unfamiliar content and unfamiliar rhetorical form. Texts with both unfamiliar content and an unfamiliar rhetorical form were difficult.

More interestingly, the results for the “mixed” conditions—that is, familiar content in unfamiliar rhetorical form and unfamiliar content in familiar rhetorical form—showed that content schemata affected reading comprehension to a greater extent than formal schemata. Texts with familiar content, even if in unfamiliar rhetorical form, are relatively easier than texts in familiar rhetorical form but with unfamiliar content. Thus, within the limitations of the particular study, the overall finding seemed to be that when both content and rhetorical form are factors in ESL reading comprehension, content is generally more important than form. When both form and content are familiar, the reading is easy; when both form and content are unfamiliar, the reading is difficult. When either form or content is unfamiliar, unfamiliar content poses more difficulties for the reader than unfamiliar form. However, rhetorical form was a significant factor, more important than content, in the comprehension of the top-level episodic structure of the text and in the comprehension of event sequences and temporal relationships among events. In other words, both content and form play significant but different roles in the comprehension of text.

5. Implications: The Teaching of Reading

What are the implications for ESL reading teachers of this research on content and formal schemata? I shall first consider the teaching implications for content schemata.

Without wanting to overstate the teaching implications based on only the one training study of cultural-content schemata (Floyd & Carrell, 1987), I do not believe it is an overstatement to say that this study, plus the effects studies which preceded it, suggests that in the EFL/ESL reading classroom cultural content is of the utmost importance, and that it often must be explicitly taught. Teachers of EFL/ESL reading need to be teachers of culturally appropriate content, facilitators of the acquisition of appropriate cultural content schemata. Kathleen Stevens's observation about first-language reading teachers applies equally, if not more so, to EFL/ESL reading teachers: "A teacher of reading might thus be viewed as a teacher of relevant information as well as a teacher of reading skills" (1982, p. 328). If students are to develop proficiency in reading culturally unfamiliar material, the EFL/ESL teacher must provide the student with the appropriate cultural schemata s/he is lacking, and, more importantly if this training is to generalize to other reading situations outside the ESL classroom, the teacher must also teach the student how to build bridges between existing knowledge and new knowledge.

Failing definitive pedagogical research on which teaching methods work best in building background knowledge—for example, direct versus symbolic experiences, direct versus incidental instruction, inductive versus deductive instruction—the best the classroom reading teacher can do is to experiment with a number of prereading activities. Direct teaching of appropriate background knowledge can be accomplished through lectures, or various other types of prereading activities, including: viewing movies, slides, pictures; field trips; demonstrations; real-life experiences; class discussions or debates; plays, skits, and other role-play activities; text previewing; introduction and discussion of the key concepts and key vocabulary to be encountered in the text and the schemata surrounding key concepts; and even prior reading of related texts. Until pedagogical research tells us otherwise, it is probably best to

use a wide variety of prereading activities in varying combinations.

Of particular relevance for EFL/ESL readers at lower levels of proficiency and with limited vocabularies—for whom meaning tends to break down at the word level—are prereading activities involving key-word or key-concept association tasks. Pearson and Johnson (1978) propose the use of word association tasks in instructional settings to yield a diagnosis of what students already know and what they need to know about a key concept. The teacher throws out to a class a key concept or key word and asks the students to volunteer their associations on the word. Initial associations made by students may be of different types (superordinates, subordinates, attributes, definitions, synonyms, antonyms, contradictories, contraries, reverses, personal experiences, or even similar-sounding words). As students volunteer these associations the teacher writes them on the blackboard or overhead projector. The teacher and the students may go even further and organize the associations into a semantic map (Johnson & Pearson, 1978).

Reflection on these associations may then form the basis for further class discussion. Langer (1981) has found that through such class discussion students may significantly enrich their networks of associations and their vocabularies. In attempting to get students to “stretch” their concepts, Pearson and Johnson (1978) and Pearson and Spiro (1982) encourage the teacher to use analogies, comparisons, even metaphors to build bridges between what the students already know about a concept and what they may need to know in order to read and understand a particular text. Obviously, it is also helpful for the teacher to offer several examples of the new concept, as well as several examples of what it is not, so students develop a sense of the boundaries of the concept.

Such semantic mapping can be used jointly as both a pre- and post-reading activity. Johnson, Pittelman, and Heimlich (1986), and Heimlich and Pittelman (1986) claim that using a semantic map as a post-reading, follow-up activity “affords students the opportunity to recall, organize, and graphically represent the pertinent information read” (1986, p. 781). It further provides students with an opportunity to compare information gained from reading to information they possessed prior to reading, and to integrate new information.

Several organized approaches and methods have been proposed

in the literature for facilitating reading through activation of background knowledge. By “organized” I mean methods that have been given a label or name, have been at least somewhat codified, and are already published and accessible in the pedagogical literature. I am referring to such approaches as: The Language Experience Approach (LEA; Hall, 1981; Rigg, 1981; Stauffer, 1980); Extending Concepts through Language Activities (ECOLA; Smith-Burke, 1980); Directed Reading-Thinking Activity (DRTA; Stauffer, 1980); Experience-Text-Relationship Method (ETR; Au, 1979); PreReading Plan (PReP; Langer, 1980, 1981); and, finally, Survey-Question-Read-Recite-Review Method (SQ3R; Robinson, 1941). Without going into the details of each of these methods, I shall merely summarize what they all seem to have in common. For further information and the details of each method, interested readers may consult the literature, or refer to Barnitz (1985), which has an extended discussion of each method.

All of these methods train the reader to *do* something *before* reading in order to activate appropriate background knowledge—either creating the text themselves (LEA), setting a communication purpose for reading (ECOLA), predicting what a text will be about (DRTA), sharing prior experiences on the topic (ETR), free associating on the topic (PReP), or surveying the text (SQ3R). This prior activation of background knowledge also gives the reader a purpose for reading.

In addition, all of these methods have the reader read the text against the background of the activated knowledge. And, finally, they all have the reader *do* something *after* reading to synthesize the new information gained from the text with their prior knowledge—for example, discussing the text (LEA, SQ3R), writing their interpretations (ECOLA, SQ3R), reviewing the text to confirm hypotheses or prove conclusions (DRTA), relating text content to prior knowledge (ETR), or reformulating knowledge (PReP). Thus, all of these methods foster the building and activating of appropriate prior background schemata, and the integration of new information with old information. One or more of these methods are applicable to every proficiency level.

Another method which has been used successfully with more advanced ESL students, those able to communicate in writing, is the use of dialog journals (Steffensen, 1988). Students are assigned

an extensive piece of reading—for example, a novel anticipated to be somewhat unfamiliar to students in terms of its cultural content schemata. Students are assigned to do a prescribed amount of reading per week, and engage in a dialog with the teacher about the reading via the dialog journal. The teacher responds in writing. The students are encouraged to identify problem areas in the reading and to express their confusions or lack of understanding in their journals. In her responses, the teacher gently leads the student to see the cultural assumptions underlying the text, and how these may differ from the students' own cultural assumptions.

One of the strengths of the journal approach is that it allows for individual differences among readers interacting with the same text. It would be particularly useful in a class of students with heterogenous first language backgrounds and individual sources of cultural interference with the text. This approach would also work well with a homogeneous first language group where the teacher can anticipate common sources of cultural interference, and use these as a basis for class or group work.

Another way of developing a program which allows for a high degree of individualization in terms of interests, skills, and potential rates of progress is the reading lab class (Stoller, 1986). In this structured class, students are required to do as much reading as possible, but they make their own choices of reading material from a wide selection of appropriate texts. A reading lab has the additional advantages of allowing each student to progress at his or her own rate, and developing content schemata in some area of interest. Its disadvantages are that it presupposes a substantial library of materials, at a variety of difficulty levels, and, since there are no texts that every student reads, it limits the kinds of group work that can be done, and tends to isolate reading from other parts of the curriculum—or any other shared experiences. For students who are not strong self-motivators and who have not developed the habit of reading in depth in their own languages, this may be a major problem.

A final way of organizing second language reading programs is the content-centered approach (Eskey & Grabe, 1988). Variations of this basic theme include English for specific purposes (ESP) courses for particular academic or occupational groups, so-called "adjunct" courses attached to other academic courses (e.g., courses

designed to aid non-native speakers enrolled in a psychology or an engineering course), and so-called “sheltered” courses, which are limited to, and tailored to the special needs of nonnative speakers in academic programs (e.g., an introduction to English literature only for international students in an ESL setting).

A feature common to these courses is that they attempt to provide what Grabe (1986) has called a “critical mass” of information on a subject for the class as a whole to explore in depth, and this in turn provides a natural occasion for reading extensively in that subject. Appropriate pre- and post-reading work also emerges naturally in the form of introductory lectures or films, ongoing discussions of the subject matter, and, following the reading, the production of oral or written presentations, which provide real motivation for reading about the subject. Student interest is stimulated by classroom give and take, and there is a natural mixing of skills—listening, speaking, reading, and writing—as the students pursue a common intellectual goal. Reading is no longer isolated; it simply becomes an integral part of the normal educational process. It is not taught as an end in itself, but as a means to learning more about a subject.

Turning now to schemata, we find that a number of instructional strategies involving text-mapping have evolved recently to help make readers aware of the rhetorical structure of texts—the way the content of a text is organized. These strategies are also intended to help readers use their knowledge about the rhetorical organization of a text to guide and organize their interaction with the text. Although these strategies have arisen from research on text analysis of both expository and narrative texts, the discussion here will be limited to expository, or informational, texts.

Generally speaking, text-mapping involves selecting key content from an expository passage and representing it in some sort of visual display (boxes, circles, connecting lines, tree diagrams, etc.) in which the relationships among the key ideas are made visually explicit. Four such ideas have all been successfully used as instructional tools: “networking” (Dansereau, et al., 1979), “mapping” (Anderson, 1978), “flowcharting” (Geva, 1980, 1983), and “top-level rhetorical structures” (Meyer, 1975; Bartlett, 1978; Carrell, 1985). Students use text cues to define the fundamental relationships as they manifest themselves in expository text. All of these techniques

use a wide variety of prereading activities in varying combinations.

Of particular relevance for EFL/ESL readers at lower levels of proficiency and with limited vocabularies—for whom meaning tends to break down at the word level—are prereading activities involving key-word or key-concept association tasks. Pearson and Johnson (1978) propose the use of word association tasks in instructional settings to yield a diagnosis of what students already know and what they need to know about a key concept. The teacher throws out to a class a key concept or key word and asks the students to volunteer their associations on the word. Initial associations made by students may be of different types (superordinates, subordinates, attributes, definitions, synonyms, antonyms, contradictories, contraries, reverses, personal experiences, or even similar-sounding words). As students volunteer these associations the teacher writes them on the blackboard or overhead projector. The teacher and the students may go even further and organize the associations into a semantic map (Johnson & Pearson, 1978).

Reflection on these associations may then form the basis for further class discussion. Langer (1981) has found that through such class discussion students may significantly enrich their networks of associations and their vocabularies. In attempting to get students to “stretch” their concepts, Pearson and Johnson (1978) and Pearson and Spiro (1982) encourage the teacher to use analogies, comparisons, even metaphors to build bridges between what the students already know about a concept and what they may need to know in order to read and understand a particular text. Obviously, it is also helpful for the teacher to offer several examples of the new concept, as well as several examples of what it is not, so students develop a sense of the boundaries of the concept.

Such semantic mapping can be used jointly as both a pre- and post-reading activity. Johnson, Pittelman, and Heimlich (1986), and Heimlich and Pittelman (1986) claim that using a semantic map as a post-reading, follow-up activity “affords students the opportunity to recall, organize, and graphically represent the pertinent information read” (1986, p. 781). It further provides students with an opportunity to compare information gained from reading to information they possessed prior to reading, and to integrate new information.

Several organized approaches and methods have been proposed

language education we are, and should be, concerned with approaches that can improve the reading skills of all learners. In this paper I have tried to show how recent second language reading research conducted within the framework of schema theory may contribute toward the goal of improving students' foreign or second language reading skills.

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require students to diagram the ideas and their inter-relationships within the text. Geva (1980, 1983), Taylor and Beach (1984), and Bartlett (1978) have all shown significant effects of teaching text structure in instructional settings with native speakers of English. Carrell (1985), as previously mentioned, showed significant effects of teaching Meyer's top-level organization patterns to readers of ESL. If students are not familiar with these rhetorical structures, such teaching serves not only to build the appropriate formal schemata, but also teaches students to activate the schemata. Mikulecky (1985) has developed classroom exercises which can be used to teach students to identify various top-level organizational patterns. Nuttall (1982) is also a good source of text-mapping classroom strategies and exercises.

Writing teachers have been aware for some time of the different rhetorical structures and the need to teach them explicitly to EFL/ESL students for composition. Now we are discovering that explicit awareness of these rhetorical structures, along with strategies for putting that knowledge to use in reading, can facilitate reading comprehension. Therefore, some EFL/ESL reading texts are borrowing rhetorical approaches quite directly from writing texts. One such text is entitled *Reading and Study Skills: A Rhetorical Approach*, by Kimmelman et al. (1984). That text departs from traditional approaches to teaching comprehension skills by grouping the skills within the framework of particular rhetorical modes and, as a result, making students aware of skills appropriate to these rhetorical modes—narrative, descriptive, analytical, and argumentative. Reading teachers may want to consult writing texts as sources for other ideas for teaching reading comprehension skills within the framework of rhetorical structure and organization.

6. Conclusion

Finally, I would like to underscore the importance of improving the reading skills of second and foreign language students. Effective and efficient second language reading skills are critical for many EFL/ESL students, especially for those whose primary source of language input may be via the written medium, as well as for those at advanced levels of proficiency, and for those with a need for English for academic purposes. As professionals in second

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