

# Applying Current Approaches to the Teaching of Reading

*“If teachers understand the nature of reading comprehension and learning from a text, they will have the basis for evaluating and improving learning environments.”* (Tierney and Pearson 1994, 496)

The nature of reading—how people learn to process textual information—has been researched by cognitive and behavioral scientists for many decades, and their work has contributed contrasting theories about what works best in the teaching of reading. As a result, language educators can choose among a wide variety of teaching methods and techniques for students learning to read in their second language (L2). Reading is a crucial skill for students of English as a Second Language (ESL) and English as a Foreign Language (EFL), and understanding the rationale behind these methods is essential for teachers who want to improve their reading lessons.

Two main approaches explain the nature of learning to read: (1) *bottom-*

*up processing*, so called because it focuses on developing the basic skill of matching sounds with the letters, syllables, and words written on a page, and (2) *top-down processing*, which focuses on the background knowledge a reader uses to comprehend a written text. The bottom-up approach is associated with a teaching methodology called *phonics*, while the top-down approach is associated with *schema theory*. Lively debate still occurs about which approach is more valid, but for many years now the top-down approach has had a greater influence on ESL/EFL pedagogy. In this article I will describe both views of the reading process, including some corresponding teaching activities and materials. I will also discuss the *interactionist* perspective, which combines elements of both approaches to reading instruction.

### The bottom-up view of reading

The traditional bottom-up approach to reading was influenced by behaviorist psychology of the 1950s, which claimed learning was based upon “habit formation, brought about by the repeated association of a stimulus with a response” (Omaggio 1993, 45). Language learning was characterized as a “response system that humans acquire through automatic conditioning processes,” where “some patterns of language are reinforced (rewarded) and others are not,” and “only those patterns reinforced by the community of language users will persist” (Omaggio 1993, 46). Behaviorism became the basis of the audiolingual method, which sought to form second language “habits” through drilling, repetition, and error correction.

Today, the main method associated with the bottom-up approach to reading is known as *phonics*, which requires the learner to match letters with sounds in a defined sequence. According to this view, reading is a linear process by which readers decode a text word by word, linking the words into phrases and then sentences (Gray and Rogers 1956, cited in Kucer 1987). According to Samuels and Kamil (1988), the emphasis on behaviorism treated reading as a word-recognition response to the stimuli of the printed words, where “little attempt was made to explain what went on within the recesses of the mind that allowed the human to make sense of the printed page” (25). In other words, textual comprehension involves adding the meanings of words to get the meanings of clauses (Anderson 1994). These lower level skills are connected to the visual stimulus, or print, and are consequently concerned with recognizing and recalling. Language is a code and the reader is a passive decoder whose main task is to identify graphemes and convert them into phonemes.

As with the audiolingual teaching method, phonics requires a strong emphasis on repetition and on drills using the sounds that make up words. Information is received and processed beginning with the smallest sound units, and then proceeding to letter blends, words, phrases, and sentences. The bottom-up model describes information flow as a series of stages that transforms the input and passes it to the next stage without any feedback or possibility of later stages of the process influencing earlier stages (Stanovich 1980).

The ESL and EFL textbooks influenced by this perspective include exercises that focus on literal comprehension and give little or no importance to the reader’s knowledge or experience with the subject matter, and the only interaction is with the basic building blocks of sounds and words. Most activities are based on recognition and recall of lexical and grammatical forms with an emphasis on the perceptual and decoding dimension.

### The top-down view of reading

In the 1960s a paradigm shift occurred in the cognitive sciences. Behaviorism became somewhat discredited as the new cognitive theory represented the mind’s innate capacity for learning, which gave new explanatory power to how humans acquired their first language; this also had a tremendous impact on the field of ESL/EFL as psycholinguists explained “how such internal representations of the foreign language develop within the learner’s mind” (Omaggio 1993, 57).

Ausubel (1968), an early cognitive psychologist, made an important distinction between *meaningful learning* and *rote learning*. An example of rote learning is simply memorizing lists of isolated words or rules in a new language, where the information becomes temporary and subject to loss. Meaningful learning, on the other hand, occurs when new information is presented in a relevant context and is related to what the learner already knows, thereby being “easily integrated into one’s existing cognitive structure” (Omaggio 1993, 58). According to Ausubel (1968), learning that is not meaningful will not become permanent. This emphasis on meaning eventually informed the top-down approach to L2 learning, and in the 1960s and 1970s there was an explosion of teaching methods and activities that strongly considered the experience and knowledge of the learner.

These new cognitive and top-down processing approaches revolutionized the conception of the way students learn to read (Goodman 1967; Smith 1994). In this view, reading is not just extracting meaning from a text but a process of connecting information in the text with the knowledge the reader brings to the act of reading. Reading, in this sense, is “a dialogue between the reader and the text” (Grabe 1988, 56). It is seen as an active cognitive

process in which the reader's background knowledge plays a key role in the creation of meaning (Tierney and Pearson 1994). Reading is not a passive mechanical activity but "purposeful and rational, dependent on the prior knowledge and expectations of the reader (or learner). Reading is a matter of making sense of written language rather than decoding print to sound" (Smith 1994, 2).

Another theory closely related to top-down processing also had a major impact on reading instruction. *Schema theory* describes in detail how the background knowledge of the learner interacts with the reading task and illustrates how a student's knowledge and previous experience with the world is crucial to deciphering a text. The ability to use this schemata, or background knowledge, is fundamental for efficient comprehension to take place.

### **Schema theory and the reading process**

According to Nunan (1999, 201), "schema theory is based on the notion that past experiences lead to the creation of mental frameworks that help us make sense of new experiences." Smith (1994) calls *schemes* the "extensive representations of more general patterns or regularities that occur in our experience" (14). As an example, he uses our generic scheme for a classroom, which allows us to make sense of classrooms we have not previously been in. This means that past experiences will be related to new experiences, which may include the knowledge of "objects, situations, and events as well as knowledge of procedures for retrieving, organizing and interpreting information" (Kucer 1987, 31). Anderson (1994) presents research showing that recall of information in a text is affected by the reader's schemata and explains that "a reader comprehends a message when he is able to bring to mind a schema that gives account of the objects and events described in the message" (469). Comprehension is "activating or constructing a schema that provides a coherent explanation of objects and events mentioned in a discourse" (Anderson 1994, 473). For Anderson and Pearson (1988), comprehension is the interaction between old and new information:

To say that one has comprehended a text is to say that she has found a mental 'home' for the information in the text, or else that

she has modified an existing mental home in order to accommodate that new information (38).

Therefore, a learner's schemata will restructure itself to accommodate new information as that information is added to the system (Omaggio 1993).

### ***Content and formal schemata***

Schema theorists make a distinction between *formal schemata* (knowledge about the structure of a text) and *content schemata* (knowledge about the subject matter of a text). Carrell (1984) states that prior knowledge of content and formal schemata enables readers to predict events and meaning as well as to infer meaning from a wider context.

Content schemata refers to the message of the text, and, if the topic is familiar, the reading task will be more productive and efficient. As Anderson (1994) explains, "a reader comprehends a message when he is able to bring to mind a schema that gives account of the objects and events described in the message" (469).

Formal schemata refers to the way that texts differ from one another; for example, a reading text could be a letter to the editor, a scientific essay, or a work of fiction, and each genre will have a different structural organization. Knowledge of these genre structures can aid reading comprehension, as it gives readers a basis for predicting what a text will be like (Smith 1994). For example, if readers know that the typical format of a research article consists of sections subtitled *Introduction, Theory, Methods, Results, Discussion, and Conclusion*, that knowledge will facilitate their interaction with the article and boost comprehension. On the other hand, if they are not familiar with this formal schema, teaching it to them could lead to improved reading ability with lasting and beneficial effects.

### ***Activating and building schemata***

Schema theory acknowledges that the reader plays a key role in the construction of meaning. Therefore, the reader's age, gender, experience, and culture are important considerations for teachers who want to select readings that will motivate their students. Anderson (1994) notes that when readers cannot locate a schema that fits a text, they may find it incomprehensible. In some cases readers may not have a schema that is pertinent to the text, or they

may need help activating the pertinent schema to be able to comprehend the text. In cases like this it may not be possible for the reader to understand the text, and the teacher must be prepared to engage in “building new background knowledge as well as activating existing background knowledge” (Carrell 1988, 248).

Bransford (1994) also mentions that difficulties in comprehension may be attributed to the lack of background knowledge presumed by the text, and he sees the responsibility of instructors as being twofold: to activate pre-existing schemata and to help students to integrate isolated “pockets” of knowledge into a schema or to build a new one.

If the texts to be read have a cultural context that is different than the student’s, the issues of formal and content schemata become even more important. McDonough (1995) explains that ESL and EFL students are faced with the difficulty of learning to read in a second language with texts that contain cultural assumptions of the target culture. Therefore, the learner may lack the culture-specific background knowledge necessary to process the text in a top-down manner. McDonough reports several studies that demonstrate how people outside a given culture may misunderstand events with unfamiliar cultural connotations. (This can also be a problem in standardized tests that may assume common schemata for students from different cultural backgrounds.)

### Applying schema theory to L2 reading

Obviously, the role of the teacher is paramount to activate and build schemata. A first task is to select texts that are relevant to the students’ needs, preferences, individual differences, and cultures. The goal is to provide meaningful texts so the students understand the message, which entails activating existing schemata and helping build new schemata. Fortunately, there is a wide body of research that provides suggestions on how to accomplish this (Carrell, Devine, and Eskey 1988). For example, after selecting a text, the following three stages of activities are typically used to activate and build students’ schemata:

1. *Pre-reading.* At this important stage the teacher should make sure that students have the relevant schema for understanding the text. This is achieved by having students think, write, and discuss every-

thing they know about the topic, employing techniques such as *prediction*, *semantic mapping*, and *reconciled reading*.

2. *During-reading.* This stage requires the teacher to guide and monitor the interaction between the reader and the text. One important skill teachers can impart at this stage is note-taking, which allows students to compile new vocabulary and important information and details, and to summarize information and record their reactions and opinions.
3. *Post-reading.* The post-reading stage offers the chance to evaluate students’ adequacy of interpretation, while bearing in mind that accuracy is relative and that “readership” must be respected as long as the writer’s intentions are addressed (Tierney and Pearson 1994). Post-reading activities focus on a wide range of questions that allow for different interpretations. Bloom’s taxonomy provides an excellent range of simple to complex questions and activities that are perfect for this stage (Anderson and Krathwohl 2001)

While schema activation and building can occur in all three stages, the pre-reading stage deserves special attention since it is here, during the students’ initial contact with the text, where their schemata will be activated.

### Pre-reading activities

The objective of pre-reading activities is to activate existing schemata, build new schemata, and provide information to the teacher about what the students know. Chen and Graves (1995), who report on the positive effect various pre-reading activities had on reading comprehension, define them as “devices for bridging the gap between the text’s content and the reader’s schemata” (664). Different activities and materials can help the teacher introduce key vocabulary and strengthen concept association to activate both formal and content schemata. Formal schemata will be activated by using devices such as advance organizers and overviews to draw attention to the structure of a text, and the content schemata will be activated by using various pre-reading activities to help learners brainstorm and predict how the information fits in with their previous knowledge.

*Prediction* is a pre-reading activity proposed by schematic theorists such as Goodman (1988), who states that “the brain is always anticipating and predicting as it seeks order and significance in sensory inputs” (16). Smith (1994) defines prediction as “*the prior elimination of unlikely alternatives*” (19–20). Predictions, according to him, are questions the readers ask the world and comprehension is receiving the answers. He asserts that it is precisely this that makes skilled readers effective when reading texts that contain familiar subject matter:

Prediction is the core of reading. All of our schemes, scripts and scenarios—our prior knowledge of places and situations, of written discourse, genres, and stories—enable us to predict when we read and thus to comprehend, experience, and enjoy what we read. Prediction brings potential meaning to texts, reducing ambiguity and eliminating in advance irrelevant alternatives. Thus, we are able to generate comprehensible experience from inert pages of print (Smith 1994, 18).

Another pre-reading activity is *previewing*, where students look at titles, headings, and pictures, and read the first few paragraphs and the last paragraph; these activities can then help students understand what the text is about by activating their formal and content schemata and making them familiar with the topic before they begin reading in earnest.

*Semantic mapping* is another pre-reading activity that Carrell, Pharis, and Liberto (1989) describe as a useful way to pre-teach vocabulary and to “provide the teacher with an assessment of the students’ prior knowledge or schema availability on the topic” (651). This activity asks students to brainstorm about the reading topic as the information is displayed on a graphic “map.” As students make associations, the map becomes a thorough summary of the concepts and vocabulary that they will encounter in the reading. It can also help build schemata and vocabulary that students do not yet possess. Again, it is important to know something about the students so the selected texts contain the type of material that is likely to be familiar and interesting to them.

Reutzel (1985) proposes another type of pre-reading activity called *reconciled reading*

*lesson*, which reverses the sequence presented by many textbooks where the text is followed by questions. Instead, the teacher develops pre-reading questions from the questions that appear at the end of the reading. Smith (1994) criticizes comprehension exercises that are presented at the end of a reading because they are like memory tests. He argues that using prior knowledge efficiently contributes to fluent readers, and he believes that there is a reciprocal relationship between visual and nonvisual (prior knowledge) information; the more the readers have of the latter, the less they need of the former. Although not all the post-reading questions can be easily turned into pre-reading ones, this strategy can be invaluable to activate schemata.

### **ESL/EFL textbooks and reading**

An overview of instructional material for ESL/EFL reveals that textbooks published before the 1970s do not include pre-reading activities. The reader is often plunged into the text and comprehension is evaluated through post-reading questions that emphasize recognition or recall. This is done mostly through close-ended questions that focus on explicit referential meanings and that are mostly targeted at lower level skills. For example, in textbooks based on the audiolingual method, reading passages highlight the structures and vocabulary introduced in the unit. There are no pre-reading activities and the exercises that follow the selections either focus on the language system itself, or the comprehension questions are of the multiple-choice type where only one correct answer is possible.

The findings of psycholinguistic and schematic theories were progressively reflected in materials after the 1970s, when textbooks gradually began to include exercises to aid the students’ top-down processing. Today, many textbooks echo the ideas advocated by the schema theorists; such texts are successful in activating and assessing relevant schemata through the use of pre-, during-, and post-reading activities. The aim of these books is to assist students in developing academic reading skills, and the pre-reading activities are prevalent.

All this is evidence of the impact that top-down processing and schema theory have had on ESL/EFL teaching and materials design,

an emphasis that has been criticized by some researchers. Eskey (1988) points out that the concept-driven models have constraints since they overlook the “perceptual and decoding dimension of the process” (93), and he argues that the top-down approach is appropriate for the already fluent reader, but not for the less proficient one. This is a particularly relevant point for ESL and EFL students, who may benefit from an increased focus on bottom-up processing. Such considerations have led to the interactive model, which is a combination of the top-down and bottom-up processing models.

### **The interactive model**

The word “interactive” in this model refers not to the interaction between the reader and the text (as in schema theory) but to the interaction between bottom-up and top-down processing skills. The interactive model acknowledges that lower level processing skills are essential for fluent and accurate reading; it also emphasizes that as bottom-up processing becomes more automatic, higher-level skills will become more engaged. For Eskey (1988), the interactive model takes into account the continuous interaction between bottom-up and top-down processing in the construction of the meaning of a text. Although good readers decode automatically with little cognitive effort, second language learners need help in decoding, since for them language is a key problem that cannot be solved by guessing. Eskey (1988) asserts that “the structure of the language of the text contributes much more to the readers’ reconstruction of meaning than strictly top-down theorists would have us believe” (98). Efficient and effective reading entails both processes interacting simultaneously, in spite of the fact that the “field today is strongly influenced by top-down processing perspectives” (Carrell 1988).

The interactive model and its variations are not yet fully reflected in materials for ESL/EFL teaching, and the decoding aspect of reading is more often than not overlooked. To compensate for this deficiency, top-down tasks may easily be supplemented with bottom-up ones in the areas of vocabulary development, extensive reading, reading rate, and discourse knowledge.

### ***Vocabulary development***

Building vocabulary is listed as one of the instructional dilemmas for second language reading because “a large vocabulary is critical not only for reading but also for all L2 level skills, for academic performance and for related background knowledge” (Grabe and Stoller 2002, 76). Eskey and Grabe (1988) state that “words seem to have a status in language akin to that of molecules in physical structures, and good readers become remarkably adept at recognizing thousands of them at a glance” (232). To improve vocabulary identification skills, it is worth giving special attention to easily prepared rapid word-recognition exercises. For instance, reading words aloud that are flashed for a few seconds, or having students quickly identify identical words from a string of similarly spelled ones, trains students in the fast visual recognition of words and phrases.

Key words from a passage that students will read may be selected for this type of exercise (see Grabe and Stoller 2001 for selection criteria). The same can be done with phrases to train students to read in meaningful chunks or segments, and with synonyms and antonyms for more advanced students (see Grabe and Stoller 2001; Stoller 1993, 1986; and Mahon 1986 for more information on these techniques). These exercises are meant to complement top-down activities, and they should ideally be used as warm-up activities. To achieve fast decoding skills, it is also important to build a large recognition vocabulary.

Although ESL/EFL textbooks show a renewed focus on vocabulary development, it is not always integrated into reading instruction in a systematic way. There are numerous techniques to introduce new vocabulary, which can be presented in a variety of ways: in topically related sets; in key word and/or key concept association tasks; in exercises to identify superordinates, subordinates, and attributes; as synonyms and antonyms; as collocations and idioms; and through rules of word formation. What is important is that “learning vocabulary is also learning the conceptual knowledge associated with that word” (Carrell 1988, 242); thus, by enlarging vocabulary we can also build schemata in a parallel way.

### *Extensive reading*

Extensive reading—reading individually and silently for the purpose of enjoyment—also promotes fluency. It is important to bear in mind that students learn to read by reading; although this may seem obvious, they need to read a great deal. In the case of extensive reading, “reading” should not be confused with “reading instruction.” As Rigg (1998, 216) points out, “reading is what the student does alone, with the text. Reading instruction is what the teacher does with the students to help them when they read.” The teacher is indirectly involved in the process, motivating the learners to read and facilitating the provision of material. Currently, texts for extensive reading are rarely included in ESL textbooks (most likely for economic and space constraints). For this reason, it is necessary to make interesting long reading selections together with opportunities for silent reading available to learners in and out of class.

### *Reading rate*

Good readers are fast readers. Helping students increase their reading rate is also of the utmost importance. The use of timed and paced readings together with other activities that are done under time pressure may be a way to develop this skill. Grabe and Stoller’s (2001) suggestions are especially useful in this regard.

### *Discourse knowledge*

Making students aware of the rhetorical organization of texts also contributes to reading fluency and efficiency. It is important to include exercises that train students in the identification of textual features and the macrostructure of different genres. Some existing textbooks use a genre-based approach, but this is usually limited to the teaching of writing. And in most cases it is restricted to only one genre, namely letters. It is essential to apply the approach to other genres (descriptions, narratives, expository texts, etc.) and to integrate it into reading lessons. Among the activities that can be used for this purpose are the uses of graphic representations of text organization (Grabe and Stoller 2001). This could include displaying cohesive devices (substitution, ellipsis, reference, and conjunction); creating headings; unscrambling paragraphs; and locating discourse markers that signal specific relationships, such as compare-contrast and cause-effect. The recognition of these discourse

features requires advanced skills, and training to identify them is essential.

### **Conclusion**

Extensive amounts of research, opinions, and suggestions exist regarding the teaching of the reading skill, and this summary of reading methods is by no means exhaustive. However, with a basic understanding of the theoretical underpinnings of top-down and bottom-up processing, teachers can better take advantage of the most useful methodologies associated with the different approaches. What is important to bear in mind is that relying too much on either top-down or bottom-up processing may cause problems for beginning ESL/EFL readers; therefore, to develop reading abilities, both approaches should be considered, as the interactive approach suggests. In my own experience as an EFL teacher, I have found that the students who benefit the most from the interactive approach are those poor readers who approach texts in a painful, slow, and frustrating word-by-word manner. By improving their decoding skills, they are freed to concentrate on global meanings. Agreeing with Clarke (1988), I believe that “ESL reading teachers must emphasize both the *psycho* and the *linguistic*” (120).

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