

The Reading Process

In chapter 5, the role of perception in the reading process was considered. In contrast to what is commonly believed, we found perception to be a selective and constructive act. In this chapter, we expand our view of the reading process and explore the mental processes, strategies, and procedures in which the individual engages to construct meaning through print. We begin with a look at the factors that impact the reader-text-writer transaction. This examination is followed by a theory and model of the reading process and a look at proficient and less proficient readers.

FACTORS INFLUENCING THE READER-TEXT-WRITER TRANSACTION

There are a number of variables that influence the transaction among reader, text, and writer (see Table 6.1). Some factors, such as the systems of language, have already been fully developed in previous chapters. Other factors, such as background knowledge, are addressed in more depth in chapter 7. Of particular importance here, however, is the fact that these factors are involved in a relationship between two individuals, the reader and the author, via written discourse. As the nature of these factors vary, so too will the relationship and communication between the reader and writer.

Too often, when text processing problems are experienced, responsibility is given to only one of the two participants. If a child experiences difficulty reading a story, for example, the teacher may hold the reader accountable for the problem. The child is thought not to have developed proficiency with the strategies that are necessary for successfully generating meaning from the text, or the teacher may feel that the student has not been adequately prepared for the reading. In contrast, if the teacher encounters difficulty reading a student paper, the writer is often held responsible. In this case, it is the author who is thought not to have

TABLE 6.1
Factors Influencing the Reader-Text-Writer Transaction

READER <—> TEXT <—> WRITER	
Systems of language	Systems of language
Availability of, and flexibility with, the reading strategies	Availability of, and flexibility with, the writing strategies
Background knowledge	Background knowledge
Purpose for the reading	Purpose for the writing
Ability and willingness to assimilate and/or accommodate during reading	Ability and willingness to assimilate and/or accommodate during writing

developed proficiency with the strategies that are necessary for successfully generating text meanings. In both these examples, it may indeed be the case that only one individual—reader or writer—is the source of the problem. However, it may just as likely be that the other party involved in the transaction has responsibility as well. Because communication is a two-way process, it is necessary to examine the contributions of both individuals to any meaning-making event.

Systems of Language

As has already been demonstrated, the relationship between the reader's language and the writer's language influences the ease with which a text can be processed. Potentially, shared language systems can more easily produce shared understandings. It is important to remember, however, that a similarity in reader-writer language does not necessarily result in fewer miscues, only miscues that tend to be more meaningful within the context of the discourse. In fact, as Susan so clearly demonstrated in chapter 5, miscues may actually increase as the reader becomes familiar with the text's language and meaning. The reader may come to feel comfortable translating the author's preferred way of expressing an idea to the reader's preferred way, while at the same time maintaining the author's meaning.

The same influence is found in writing as well. When generating a text for an audience that shares the author's language variation, the writer need not spend inordinate amounts of time and cognitive energy selecting language forms that will be readily comprehensible to the reader. Rather, linguistic structures commonly used by the writer can be accessed and employed with less difficulty and effort.

Strategies

A second factor that influences a reader's and writer's transaction with print is the strategies available to the language user and his or her flexibility in employing them. Strategies represent those cognitive processes or behaviors that the individual

engages so as to create meaning through written discourse. Readers and writers, for example, predict meanings when transacting with print. As reading or writing proceeds, these anticipated meanings are monitored and evaluated in light of subsequent and future meanings. Strategies for the most part operate in a transactive and parallel manner. That is, more than one strategy may occur at any given moment and these strategies need not operate in a particular sequence.

Background Knowledge

Not only do readers and writers bring their language to the printed page, conceptual knowledge is brought as well. There exists a symbiotic relationship between the knowledge conveyed through a text by the author and the knowledge conveyed through a text by the reader. In general, the more the reader's and author's backgrounds parallel one another, the smoother the construction of meaning is likely to be. For the reader, background knowledge impacts both the quality of the miscues and how a text is ultimately understood. In fact, background knowledge related to the content of a text has been found to have an overriding influence on the reading process, whether in traditional print form (Alexander & Jetton, 2000; Tierney & Pearson, 1994) or in hypertext processing (Lawless, et al., 2003). Similarly, for the writer, background knowledge impacts his or her ability to manipulate and translate ideas into written language. If I am writing about a personal experience, accessing and using this knowledge will be relatively easy. Both the meanings and their organization are already ordered in a time-sequenced structure. However, if the writing task calls for synthesizing information that is not already cognitively integrated in my mind, I am likely to encounter more processing difficulties as I put pen to paper.

The relationship of the reader's and writer's backgrounds is more than an issue of amount or quantity. Knowledge has a number of additional qualities that influence the literacy processes. The organization of the knowledge and its depth or extensiveness must be taken into account. The general or specific nature of the knowledge and its interconnectedness with other knowledge structures also have to be considered. Finally, the flexibility of the reader or writer in using existing knowledge to build new knowledge through assimilation and accommodation will have a significant impact on reading and writing. These various qualities of background knowledge are explored throughout the following chapter on comprehension and in chapter 8 on the writing process.

Purpose

Language users do not initiate an engagement with a text without a reason or purpose. These intentions or goals, which are realized through the formation and implementation of plans, may change or evolve as the text is developed. Nonetheless, intentions drive reading and writing acts. As noted in chapter 2 on the nature

of language, Halliday (1973) delineated various functions that language can serve. A reader or writer might engage the printed word for an instrumental purpose, to satisfy or obtain material needs; or the purpose may be to explore the environment, to ask questions and seek knowledge; or the language user may engage with written discourse to leave the here and now and enter into a new world. These purposes have a direct and significant impact on how and what meanings are ultimately constructed through written discourse.

Assimilation and Accommodation

As meaning is constructed, it is not uncommon for the reader and writer to be changed cognitively. What the language user knows when the transaction with print terminates may be qualitatively and quantitatively different from what he or she knew when the transaction was initiated. Both readers and writers build knowledge through two basic processes of learning: assimilation and accommodation. In some instances, the meanings constructed through print fit within the knowledge structures of the reader or writer; a cognitive congruency exists between the individual and the information. Therefore, the addition of information to LTM results in an elaboration or extension of existing knowledge structures. The new knowledge is simply added to, or assimilated into, what is already known. In this top-down process, the meanings fit within existing cognitive frameworks.

There are also instances when the information to be generated through print will not easily fit into the language user's available cognitive structures. The reader may lack the knowledge to make sense of the information presented; or, the writer, through the very act of writing, may discover new meanings or insights that create disequilibrium with existing knowledge structures. For the information to be understood by the reader or writer, a restructuring or accommodation of what is known is required. This bottom-up process results in a modified cognitive framework from which the reader or writer is then able to assimilate the meanings under construction. In general and to varying degrees, both assimilation and accommodation occur during reading and writing.

The impact of assimilation and accommodation is most noticeable when students encounter ideas that conflict with their worldviews. During the teaching of a graduate course on literacy development, I assigned my students an article about the constructive nature of language learning. The author of the article contrasted the commonsense notion of language learning (i.e., imitation and reinforcement) with a constructivist perspective (i.e., rule generation, testing, and modification). During class discussion of the article, many students failed to understand that the author was explicitly rejecting a behavioristic view of language learning. Their view of language development as a process whereby young children mimic the language of their parents was so strong that it blinded them to the perspective presented by the author. Rather than accommodate this new view, students "forced" the information into their existing cognitive structures.

Given the impact of language, strategies, background, purpose, and assimilation and accommodation on discourse processing, the notion of reading and writing as monolithic abilities becomes untenable. All acts of literacy are not equal. Reading and writing do not consist of a set of subskills that can be easily isolated, practiced, mastered, and then used with the same degree of proficiency or facility from one text to the next. Rather, language performance changes as the relevant factors impinging on the literacy process change. As conditions and contexts vary, so too will the process and the product of the literacy event.

It is important to note that the previous discussion was largely focused on "traditional" texts. That is, texts printed on paper. However, computer technology and the texts the reader is able to access through the World Wide Web, for example, are increasingly becoming a standard form of reading. Frequently, these texts contain hyperlinks to additional texts written by additional authors. In such circumstances, the notion of text is expanded (Kinzer & Leander, 2003) and the relationship between the reader and the writer is no longer a static one. Rather, the relationship is variable and dynamic as the reader moves from one hypertext to the next.

WHAT DO THEORIES AND MODELS HAVE TO DO WITH TEACHING READING AND WRITING?

Before examining what transpires when an individual puts eye to print, a brief introduction to theories and models is necessary. This provides a framework for what can and cannot be expected from a reading theory and model. Even more importantly, this examination helps demonstrate how theories and models are relevant to teachers as they promote literacy development in their students.

Simply put, a theory is an explanation of a particular phenomenon that captures its critical elements or factors and their transactions. More than a description of the phenomenon's surface structure, a theory attempts to explain its deep structure. These explanations are working hypotheses that highlight significant factors and relationships, while at the same time ignoring those factors and relationships that are only peripherally related to the phenomenon. Theories, therefore, disregard idiosyncratic behaviors, focusing instead on behaviors that are common across contexts. Given a complex phenomenon, theories help us perceive more effectively through a process of selective attention as they attempt to represent and organize relevant data (D'Angelo, 1975; de Beaugrande, 1980; Harste & Burke, 1978). In the case of reading, a theory identifies the common processes and strategies used by efficient and effective readers to make meaning through print. Additionally, a reading theory sets forth various factors, such as background knowledge and purpose, and their impact on the reader's use of the identified processes and strategies.

A model, in contrast to a theory, is a nonlinguistic representation of the key factors and their interrelationships in a theory. In many respects, a model is an illustration or icon of the phenomenon. A model of the reading process, therefore,

illustrates the strategies and processes involved, the factors influencing these processes, and the interplay among them.

It is commonly assumed that classroom teachers are at best uninterested and at worst hostile to theory. Teachers, it is said, are practitioners, more concerned about what to do on Monday than about philosophical issues. However, theories, even those which are unexamined, can and do have a direct influence on classroom instruction. As Steiner (1978) noted, theories serve three functions. First, they allow for a greater understanding of a phenomenon. Teachers need and want to understand how the reading process operates. In my own elementary school teaching, I can remember being frustrated teaching young children to read. Although I was able to understand and follow the instructions in the basal reader, I never fully understood why I was engaging the students in particular activities. This was especially the case when introducing my students to reading skills that I did not know myself. However, rather than questioning the usefulness of these skills, I simply assumed that I was deficient in some way as a reader. This confusion was largely due to my lack of understanding concerning how the reading process operated and what the children needed to learn to successfully engage in the process.

Additionally, Steiner (1978) proposed that theories allow for the generation of predictions concerning the phenomenon. A theory of reading allows the teacher to anticipate how well students might be able to process and understand a particular text. When I gave Susan the two stories, "A Pin for Dan" (Fries et al., 1966) and "The Great Big Enormous Turnip" (Tolstoy, 1976), to read, I knew beforehand what miscue patterns I would most likely observe. My understanding of the reading process, the student, and the texts allowed me to predict Susan's processing behaviors prior to the actual acts of reading.

Finally, an understanding of theory allows us to influence the phenomenon itself. For teachers, this means they can promote literacy development in their students by the types of reading materials selected or the kinds of instructional support provided before, during, and after reading is initiated. By changing the text for Susan, I was able to influence the strategies she used and the systems of language on which she focused. As can readily be observed, the ability of theory to help teachers understand, predict, and influence their students' transactions with print demonstrates the relevance of theory to classroom settings.

A THEORY AND MODEL OF THE READING PROCESS

In this section, a theory and model of the reading process is presented and discussed. The theory and model of reading (Fig. 6.1) has been adapted from Kucer (1985a, 1987, 1989b; see also Tierney & Shanahan, 1996). The theory and model is also used in chapter 8 on the writing process so that links between the two modes of discourse production can be developed. For both reading and writing, five features are addressed: knowledge search, context, goals and plans, strategies, and evolving text.

Knowledge Search

Perhaps the most appropriate place to begin a discussion of the reading process is with the quest for meaning that permeates all language use. When reading is initiated, the language user searches for background knowledge relevant to the communicative situation. Background knowledge, stored in LTM, is represented in what cognitive scientists have termed schemata, "the building blocks of cognition" (Rumelhart, 1980, p. 33). Simply defined, schemata are complex structures of information that represent the individual's past encounters with the world. They contain the reader's knowledge of objects, situations, and events, as well as knowledge of processes, such as reading, washing clothes, or home buying.

As discussed more fully in the following chapter on comprehension and in chapters 9 and 10, all knowledge is implicitly or explicitly culturally coded. Because we operate within a variety of social contexts and assume a variety of social roles or identities, our lives are permeated and influenced by cultural markings (Ferdman, 1990). In fact, "it is not possible to think, act, [and mean] independent of culture" (Smagorinsky, 2001, p. 146). Our experiences with and knowledge of objects, situations, events, and processes are always culturally based. The discussion of cultural knowledge, therefore, is interwoven with the discussion of knowledge in general so as to avoid the danger of separating culture from experience.

There is a similar danger in separating cognitive knowledge from affective knowledge. As Eisner (1994) noted, this distinction between cognition and affect can result in "practical mischief"; that is, schools too often value the cognitive over the affective and focus on what students know rather than what students feel. In reality, there can be neither affect without cognition nor cognition without affect. To have feelings is to have a reaction to something that is known, to an idea. Likewise, to know something always entails accompanying feelings. Even the lack of feelings is, in effect, an affective response to something known.

Schemata might best be conceptualized as cognitive maps. On such maps, each location represents a concept or idea, with the roads from one location to the next signifying conceptual linkages. The number of linkages among concepts indicates the degree of their interrelatedness. Potentially, each concept in a knowledge structure can be related to all other concepts if the individual is capable of building roads from one location to another. Smith (1975) suggested that organization is the key to adding information to and retrieving information from schemata.

Maps can also represent information on a variety of levels of specificity—from world maps to national maps to city maps, and so on. Similarly, schemata contain both global and local information that is hierarchically arranged. The schema highest in the hierarchy represents knowledge in its most global and abstract form. Those that are embedded and lower in the structure contain information of a more specific nature. The reader's knowledge of the various systems of language is one such example of how this embedding might operate, with pragmatics serving as the overarching concept within which other systems such as text structure,

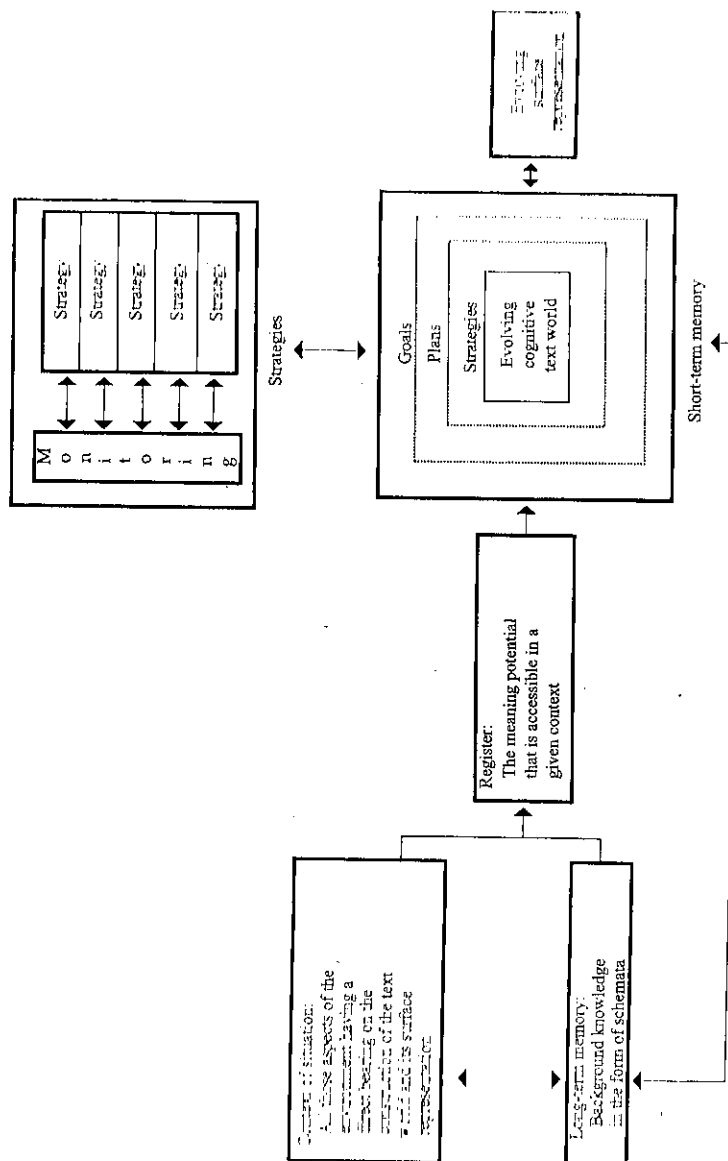


FIG. 6.1. A model of the reading and writing processes. From Kucer, S. B. (1985a). The making of meaning: Reading and writing as parallel processes (p. 320). *Written Communication*, 2, 317-336.

semantics, and morphology are embedded (see Figure 2.5 for an illustration of this embedding).

As the individual searches available background knowledge, he or she evaluates its relevance and appropriateness. For the reader, the background must support the construction of a plausible interpretation for the print being encountered. During the process of reading, as new information is encountered, the reader continually evaluates the background knowledge being used to support an understanding of the text. Readers, however, do not construct their understandings only from what is already known. They also utilize meanings and relationships that have been discovered through their engagements with the text. Simply by reading, readers come to see what was not previously seen.

Under many literacy conditions, the location of appropriate background knowledge can be a major obstacle for the reader. If the relevant information is not readily available, an extensive search will become necessary. If the information is not available in a usable form, accommodations may be necessary. Van Dijk and Kintsch (1983) proposed that in most cases, available schemata will not fit the requirements of the reader. Rather, the schemata "provide a basis or a background for comprehension, but no more" (p. 304).

As we have seen with Susan, as readers increase their background knowledge during the very process of reading, their miscues become more meaningful. This relation between background and the quality of miscues was also explored by Rousch (1976). He studied the quality of the miscues made by two groups of fourth graders who had the same reading and intellectual ability. One group, however, had extensive conceptual awareness of the content in the text to be read; the second group had little prior knowledge. In analyzing the students' miscues, Rousch found that the group with the most background knowledge produced miscues that were more syntactically and semantically acceptable and had higher retelling (comprehension) scores. Simply by manipulating the relation between the background of the reader and the background of the author, Rousch was able to impact the ability of the children to effectively and efficiently process and understand text.

The impact of background knowledge on the reading process—and writing as well—has been one reason why many educators have advocated the use of thematic units in the classroom (Kucer et al., 1995; Richards & McKenna, 2003; Silva & Delgado-Larocco, 1993; Silva & Kucer, 1997). In such units, there is a continual building up of linguistic and conceptual knowledge related to the topic under study. As this knowledge is developed, students come to more effectively manage the reading and writing processes. A similar kind of building up of knowledge can also occur through the use of hyperlinks which can offer "readers a more vivid and rounded sense" (Lankshear & Knobel, 2002, p. 30) of the topic. In a third-grade bilingual classroom in which I recently worked, there was a student, Elvis, who demonstrated great difficulty speaking, reading, and writing in English. He was reluctant to enter into class discussions, and during the first months of school, he attempted to avoid many of the activities presented by the teacher. In November, the

children decided that they wanted to explore a theme on amphibians and reptiles. Suddenly, Elvis became one of the more proficient English language users in the class. He actively contributed to class discussions and eagerly engaged in the literacy activities related to the topic. The teacher and I were astonished at this unexpected transformation and asked Elvis about his interest in participating. He proudly informed us that he was an "expert" on the topic and had several pet amphibians and reptiles at home.

The Contextual Dependency of Reading

If, as has been suggested, reading is an act of meaning making, it is necessary to begin to account for the impetus that drives this act and causes a reader to initiate a conversation with a text. In a sense, we must begin to account for the contextual dependency of literacy. Such an accounting is necessary because reading does not evolve within a communicative vacuum, devoid of situational and cultural supports and restrictions. Rather, acts of reading are functionally based and arise from a transaction between the language user and the context of the situation. The context of a situation, as defined by Halliday (1974), consists of all aspects of the environment that have a direct bearing on the construction of meaning. This includes such things as the person doing the reading, the subject matter, the role that the text is playing within the situation, and any other participants in the communicative event.

Through a transaction between reader and context, a meaning potential—what Halliday (1974) called a register—is realized. The register defines the range of meanings and structures typically associated with a particular setting. Consequently, the register places parameters on which meanings and forms are most accessible during the reading process. By narrowing the available semantic and structural options, the register supports the reader in predicting those configurations of meaning that are likely to be encountered in any communicative setting. Furthermore, it provides the necessary framework within which the relevance and appropriateness of the reader's linguistic and conceptual background knowledge for the given setting can be judged. Therefore, the meanings generated must not only be internally coherent (i.e., cohere in and of themselves); they must be externally coherent as well. They must fit within the environment in which they evolve. This intimate relationship between knowledge and context means that the reader is never using background information with complete freedom. Rather, the availability of knowledge is not only cognitively dependent, but situationally dependent as well. The knowledge available varies from situation to situation.

Sankoff (1980) proposed a probabilistic model of language processing to account for this relation between background knowledge and context. He argued that in any language situation, the meanings and structures produced are not so much dependent on one's "competence" as a reader as they are produced relative to the social context itself. As situations and perceptions change, so too will the knowledge

available. This phenomenon occurs because in different contexts, different patterns of schemata are activated. Knowledge is defined as a fluid construct, rather than a fixed entity, that is capable of changing from situation to situation (Nejad, 1980). Researchers have found that what is recalled from a reading is greatly influenced by the situation in which the text is read (Carey, Harste, & Smith, 1981; Pichert & Anderson, 1977; Smagorinsky, 2001). This impact of context on understanding is further developed in the forthcoming chapter on comprehension.

For all that has been said about the environment and register, it must not be forgotten that these are not “givens” for the reader. They are not objective entities in and of themselves, outside of and separate from the language user. Each context is defined by the particular reader’s experiences within the culture and by his or her past encounters with similar situations. Grounded in these experiences and the knowledge that they have engendered, readers will selectively attend to certain elements of the context of situation while systematically ignoring others.

Because of differing experiences, different individuals may come to characterize, define, and interpret the same context in various ways. Each characterization results in the production of unique meaning potentials. This in turn affords the reader unique options and choices and may result in unique understandings. Although there is no situation that the individual faces that does not to a certain extent prescribe the meanings to be engaged, the range of options and meanings available is governed by the background knowledge of the reader. As we will see in the chapters on literacy as a social practice and the authority of written discourse, the individual’s background knowledge is significantly impacted by his or her various social identities.

Goals and Plans: Reading as an Intentional Act

As with most human behavior, reading is a goal-directed and purposeful process. The context of a situation not only sets parameters on the range of meanings and structures to be encountered, but it also serves as the very impetus for transacting with written discourse. The meanings ultimately realized in any given situation are the product of an internal response by the individual toward a communicative goal. The language user brings his or her intentions to the literacy event. Although the background knowledge available for text processing is constrained by the context and the resulting register, the knowledge that is actually used for constructing meaning is determined by the reader’s intentions.

The outcome of any goal is that of a problem: how is the goal to be fulfilled or realized? Because all texts are not read for the same reason or in the same way, the reader must decide, sometimes consciously and sometimes unconsciously, what must be done for the goal to be attained. This results in a tentative plan of action that represents the language user’s determination to act in a particular fashion. Plans are designed to take the language user from where he or she is at the present moment to where he or she wants to be—the goal—at the conclusion of reading.

Therefore, plans and their corresponding goals give directionality to reading. They serve as a control mechanism, guiding the reader down particular pathways and helping the reader avoid others in the search for meaning.

The purpose of the reader has a direct impact on discourse processing because readers vary their interactions with written discourse based on their intentions. If the reader is seeking a specific piece of information, scanning may be initiated. In such cases, the reader ignores much of the print, focusing attention only on that information being sought. Reading a recipe to find the amount of an ingredient or to determine cooking time and temperature would engage the reader in scanning. Skimming is employed when the reader is seeking a general understanding of the text. It is not uncommon for the morning newspaper to be skimmed when one is pressed for time before going to work. The reader’s purpose is simply to get a “feel” for what has happened in the world, with the hope of a closer reading later. Such a close reading is usually initiated when a fuller, more detailed understanding of a text is desired. If the purpose is to recall the information in a text—rather than simply to fully understand it—the reader may need to reprocess the text several times and engage in recall attempts. Finally, the need to memorize will repeatedly focus the reader’s attention on the surface level of the discourse. Proficient readers are flexible in the way they process a text based on their goals and plans. They vary their reading to fit their needs. Less proficient readers, on the other hand, tend to exhibit less flexibility and process all texts in a similar manner, regardless of the purpose of the reading.

A personal experience illustrates the relationship among goals, plans, and processing, and their changing nature in reading. A number of years ago, I was involved in teaching a graduate reading disabilities course. I had assigned my students an article on the role that STM plays in the reading process and planned to discuss the topic the following week. Having read extensively in this area, my initial reading goal was simply to acquaint myself with the manner in which the author addressed the subject. Because I did not anticipate encountering a great deal of new information, my plan was to quickly skim the text, looking for specifics that I might include in my upcoming lecture. In essence, I planned to assimilate the new information to further extend my current understanding of STM.

Once I began reading, however, I discovered that the author was addressing the topic in a rather unique manner. My initial prediction that the author would share my understanding of the role of memory in the reading process did not appear to be totally accurate. In a sense, there was a mismatch between my background knowledge and the author’s. Being a flexible reader, I set aside my initial goal for reading and replaced it with such alternatives as: What exactly does this author believe about the memory system? Do the author’s beliefs make sense based on what I presently know about the issue? What accommodations do I need to make in my own understanding of the role of memory in the reading process to comprehend the author’s meanings? It was only through meeting these new goals that I was able to return to my initial reason for reading the text. Such a change in goals also

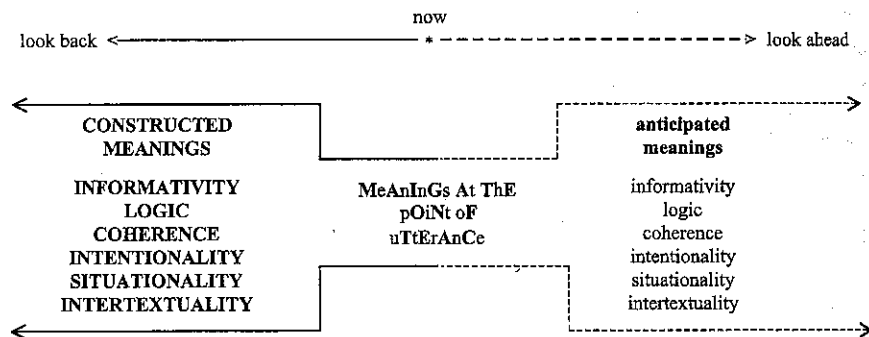


FIG. 6.2. Continuity building in reading and writing. From Kucer, S. B. (1989b). Reading a text: Does the author make a difference? (p. 162). In B. Lawson, S. Ryan, and W. R. Winterowd (Eds.), *Encountering student texts: Interpretive issues in reading student writing*. Urbana, IL: NCTE.

required that I modify my initial plans. Rather than quickly skimming the text, my new goal required a far more detailed and in-depth reading.

In a more general sense, the goal of any reader is to build what has been termed continuity (de Beaugrande, 1980, 1984; Kucer, 1989b). As illustrated in Figure 6.2, continuity involves a number of characteristics. These characteristics guide the evaluation of constructed meanings as well as those meanings that are anticipated or predicted. The first two characteristics of continuity are informativity and logic. The ideas presented must convey understandable or comprehensible information. They must be meaningful in and of themselves. In addition, ideas must be logical or reasonable; the ideas must conform or correspond to what the reader knows about the world in general and about the topic in particular. In judging informativity and logic, the reader relies on an external source: his or her background knowledge.

As already demonstrated, meanings must be internally coherent as well (Halliday, 1974; van Dijk, 1980; van Dijk & Kintsch, 1983). Each idea should be conceptually linked to those around it and also relate, at least indirectly, to all other meanings in the text. The meanings generated by the reader must form a unified and noncontradictory whole. Van den Broek and Kremer (2000) suggest that one way in which readers build coherence is by being particularly sensitive to referential and causal or logical relations throughout a text. Referential relations refer to objects, people, and events that are repeated throughout the text. Readers must remember that these entities have been referenced earlier in their reading. That is, readers must remember that the entities have been previously addressed in some manner and are being returned to at this point in the text. Causal relations indicate how different events or facts impact one another. In our previous discussion of story grammar in chapter 2, we know that seeing the worm caused the fish, Albert, to attempt to eat it.

With computer technologies, coherence takes on expanded forms. The use of sound, video, and hypertexts requires that the reader understand the conceptual

relationship among these various sign systems and the text being processed (Kinzer & Leander, 2003). These sign systems and links offer the potential for additional or expanded readings and may actually decenter the initial text being processed.

Intentionality is the fourth characteristic by which continuity is judged. Reading is a functional process; it is used to accomplish "acts" in the world. As such, reading is always goal- and plan-oriented (Bruce, 1980; Meyer, 1982; Pratt, 1977). If the meanings generated are to be acceptable, they must reflect the purpose that drives the reader.

Directly related to the characteristic of intentionality is that of situationality. Goals and plans, as we have seen, do not emerge in a vacuum but rather are situationally based. It is a communicative context that first provides the impetus for the individual to engage in the reading act. In fact, Halliday (1973, 1974; Halliday & Hasan, 1980) and Brandt (1990) proposed that the meanings in any text always contain elements of the context from which they were generated; the context is embodied in the discourse produced. The meanings, therefore, must be relevant to the current or a recoverable situation.

Finally, the continuity of the meanings generated is evaluated in terms of intertextuality. Just as meanings must relate to a relevant situation, so too must they relate to previously encountered texts (Bazerman, 2004; de Beaugrande, 1980; Hartman, 1992; Hartman & Hartman, 1993). As we saw in the chapter on the nature of language, no world of meaning stands alone, and both its content and form will display features found in other texts. The meanings must be linked to existing text types and genres, such as narration or exposition and, respectively, short stories or research articles. In addition, they must reflect an organizational pattern, such as time order, antecedent-consequent, or comparison-contrast, that is acceptable within a particular text type (Meyer, 1982). A number of studies have explored the supporting role in which experiences with particular types of written discourse in one context impact and sustain subsequent encounters with similar discourse in other contexts (DeFord, 1981; Eckhoff, 1983).

Reading Strategies

Strategies are information processing procedures that operate within STM. Strategies, driven by print, background, and purpose, guide the reader's transaction with print and the construction of meaning. Using the print and background knowledge, strategies allow the reader to build a deep structure from the surface structure of the written discourse. Those meanings constructed within STM are ultimately stored in LTM.

Before continuing the discussion of reading strategies, it would be helpful to first examine your own reading behavior. As a proficient reader, your own transactions with print can serve as a framework and guide for understanding what readers do in general. The left hand column in Table 6.2 contains a short story modified from Y. Goodman and Burke (1980). Read the story, and monitor your cognitive actions.

TABLE 6.2
Reading Demonstration

<i>The Boys</i>	<i>Reading Behaviors and Reasons</i>
The boys had been out all day long looking for game. Their arrows were nearly gone and some of the boys had broken the strings on their bows. So, they decided to stop hunting and sat down to rest under a large oak tree by a cool stream. Over at the edge of the wood they saw their friend, Henry, making a bow to a little girl with a bow in her hair who was walking down the road. She had tears in her dirty dress and also tears in her eyes. The girl gave Henry a note which he brought over to the group of young hunters. Read to the boys, it caused great excitement. After a minute but rapid examination of their weapons, they ran down to the valley. Does were standing at the edge of the lake, making an excellent target. The boys watched for a minute, and then began to shoot.	

Note. Adapted from Y. Goodman and Burke (1980).

In the right hand column, jot down your reading behaviors and why you engaged in these behaviors.

In reading "The Boys," you may have engaged in some or all of the following behaviors. When you encountered the second <bow> in the text, you may have predicted a noun and the morpheme that means an object from which to shoot arrows. This meaningful prediction was based on the fact that <bow> was used earlier in the text that had the boys hunting with <bows and arrows>. However, as you read on, monitoring and evaluating the sensibility of your predictions and attempting to integrate meanings across sentences, you discovered that this prediction did not make sense in the context of <to a small girl>. At this point, you may have engaged in a variety of revision behaviors. You may have stopped reading, returned to reread the sentence, and changed your prediction; or you may have stopped reading and mentally rethought and changed your prediction; or you may have decided to continue reading to see if your prediction would ultimately make sense. Similarly, you may have mispredicted when encountering other homographs (i.e., words that are spelled alike but that are pronounced differently and have different meanings) in the story: <tears>, <read>, <minute>, and <does>.

After making a number of mispredictions, you may have also changed the manner in which the text was read. Many readers initially think that this short story will be relatively easy reading and anticipate few difficulties. However, as

readers encounter various homographs, they realize that a closer monitoring of their meanings is warranted and they vary their reading of the text accordingly. Readers may slow their reading, and become more cautious in their predictions, hoping to avoid the time and effort demanded when predictions must be revised. On the otherhand, some readers may decide to actually speed up their reading. They quickly skim the text to discover what is to be encountered. Then, based on this general understanding, they return for a closer reading.

Although a demonstration, your processing of "The Boys" highlights a number of strategies that are part of the reading process. Drawing from a variety of sources (e.g., de Beaugrande, 1980; K. Goodman, 1996; Just & Carpenter, 1987; Kucer, 1989a, 1995; Kucer & Tuten, 2003; Rumelhart, 1994; Smith, 1994a, 2004; Weaver, 2002), Table 6.3 formally identifies and defines these strategies. It is worth repeating here that these strategies are never mastered or perfected. As texts, contexts, and purposes change, so too will the ability of the reader to manage the process.

Evolving Cognitive Text World

As the reader puts eye to print, a mental world of meaning is constructed within STM and stored in LTM. Using the various strategies, the reader builds a web of meaning (deep structure) from the print (surface structure). Throughout the creation of this evolving "new text" (Smagorinsky, 2001, p. 134), the meanings are continually monitored, evaluated, and updated—revised—as necessary. Meanings, consequently, are provisional in nature.

The evolving world of meaning serves a variety of functions for the reader. First, as we have seen, previously constructed meanings support the reader in selecting and sampling the print and in forming predicted language and meanings. This orienting function also allows the reader to evaluate the degree to which new meanings cohere with past meanings and to make adjustments as required. In the case of Susan, for example, her developing understanding that there was a repetitive and cumulative pattern in "The Great Big Enormous Turnip" (Tolstoy, 1976) allowed her to accurately predict the word <again> the second time it was encountered in the text. Therefore, as noted by Smith (1994a, 2004), as the world of meaning evolves, the reader relies less on the surface structure (visual information) and more on the deep structure (nonvisual information) that has been constructed.

AN EXAMINATION OF PROFICIENT AND NONPROFICIENT READERS

Now that you have a better understanding of reading and the factors that influence the process, it would be useful to examine the behaviors of proficient and less proficient readers. Most teachers listen to their students read on a regular basis. All too often, however, their analysis of student reading is quantitative rather than qualitative; that is, the number of words "missed" are calculated but not the impact

TABLE 6.3

Reading Strategies and Processes

- 1. Generates and organizes major ideas and concepts.** Readers understand that the ideas in a text can be ordered in terms of their significance. They know that all ideas are not of equal importance. Readers attempt to get the "big picture" and look for generalizations and concepts and their corresponding or supporting facts and details.
- 2. Develops and supports generalizations and concepts with details and particulars.** Readers develop and link details and facts to major ideas and concepts. Generalizations are linked to concepts and facts; facts and concepts are linked to generalizations.
- 3. Organizes or integrates meanings across the text into a logical and coherent whole.** Readers pull ideas together so that they form a unified and noncontradictory whole. Facts and details are linked to major ideas, concepts, or generalizations. Major ideas are related to supporting evidence and supporting evidence is related to major ideas.
- 4. Samples and selects visual information from the available print.** Readers selectively pick up only that print which is necessary for the formulation of meaning. Word beginnings and endings, consonants, and tops of letters typically provide the most useful information. In many cases, much of the print is ignored.
- 5. Uses a variety of linguistic cues.** Readers use a variety of cues or kinds of information to make meaning from what they are reading. Readers select from a range of systems of language: pragmatic, text type, text structure, genre, semantic, syntax, morphology, orthography, graphophonemic, grapheme.
- 6. Uses a variety of text aids—e.g., pictures, charts, graphs, subheadings, and multimodal technologies.** In addition to the use of linguistic cues, readers utilize text aids. They realize that text aids have been used by authors to facilitate, extend, highlight, and organize text meanings.
- 7. Uses relevant linguistic and conceptual background knowledge.** In order to generate meaning, readers make use of relevant linguistic and conceptual background knowledge. Readers bring their knowledge of their world and language to the text in order to make meaning from the print. It is through the use of this knowledge that readers are able to determine whether or not what they have read sounds like language, makes sense, and meets their purpose.
- 8. Makes meaningful predictions.** Readers make meaningful predictions based on what has been previously read, the visual information sampled and selected, and their background knowledge.
- 9. Monitors and evaluates the meanings generated.** Readers continually assess the meanings generated. They ask themselves: "Does this sound like language?" "Does this make sense?" "Does this meet my purpose or intention?"
- 10. Revises when meaning is lost or purposes are not realized.** Readers change their predictions or meanings when they answer "no" to the questions: "Does this sound like language?" "Does this make sense?" "Does this meet my purpose or intention?"
- 11. Utilizes a variety of strategies when revising.** When revision is initiated, readers utilize a variety of strategies that are appropriate to what is being read. Readers may: stop reading and rethink what has been read, reread previous portions of the text, read ahead to gather more information, read on to see if there is a need to revise, form a tentative prediction and read on to see

if it makes sense, ignore it, seek assistance from an outside source (e.g. dictionary, encyclopedia, another reader), stop reading, use text aids, substitute a different meaning, sound it out.

12. Generates inferences or goes beyond the information given. Writers do not make all meanings explicit in their texts. Rather, they expect readers to be able to go beyond the information given and make unstated connections on their own. Readers generate inferences by building links between their prior knowledge and the information generated from the text.

13. Reflects on, and responds and reacts to, what is being read. Reading is an affective as well as a cognitive

process. Meanings generated elicit personal reflections, responses, and reactions from the reader. Readers argue, affirm, talk to, laugh, or cry at the meanings that the author is conveying.

14. Varies the manner in which texts are read based on different purposes. Readers do not process all texts in the same way. Rather, they vary their reading depending on their purposes, such as to locate specific details, to find the general idea of the text, to understand the entire text, to remember the text, to memorize the text. How a recipe is read to discover what ingredients need to be purchased differs from the reading of a mystery for enjoyment, and both differ from how one reads directions to assemble a bicycle.

of these miscues on meaning. Also, the miscues are usually attributed to a lack of graphophonemic or word recognition skills. The impact of other systems of language, meaning, and context may not be considered.

Tables 6.4 and 6.5 contain miscues made by proficient and less proficient readers at a variety of grade levels. These miscues have been taken from a number of sources, both published (e.g., Allen & Watson, 1976; Cambourne & Rousch, 1979; K. Goodman, 1977; Kucer & Tuten, 2003; Sims, 1982) and unpublished. Take a few moments to read through and analyze the patterns of miscues in the two tables. As you read, keep in mind the impact that the miscues have on meaning and the degree to which the reader relies on various systems of language, especially the use of graphophonemics.

An examination of the proficient reading behaviors in Table 6.4 demonstrates the overwhelming concern of effective and efficient readers with meaning. In general, most of their miscues make sense within the context of the sentence. Reader One, for example, substituted <aspirin> for <oxygen> (a noun for a noun that makes sense within the sentence), formed a contraction out of <does not>, and changed the tense of the verb <pet>.

Both Readers Two and Five used their dialects to change the surface structure of the text being read. Reader Two changed the verb <went> to <goed> and omitted the <ed> on <land>. Similarly, Reader Five omitted the <s> on <gate>, changed <headlamps> to <headlights>, and added an <s> to <beam>. Although we may feel more comfortable with the dialectal miscues of Reader Five than those of Reader Two, the same linguistic and cognitive processes and products are involved in both readings; that is, the syntactic and semantic acceptability and integrity of

the discourse is maintained. Our discomfort most likely stems from sociocultural reasons and the status of various dialects. This issue was examined in the previous chapter on language variation.

The consistent miscuing of <basketball> for <baseball> by Reader Four is particularly interesting and revealing. It demonstrates that proficient readers monitor and evaluate the meanings they generate. Every sentence in the story "Bill Evers and the Tigers" (Bank Street College of Education, 1965) containing the word

TABLE 6.4

Miscues Made by Proficient Readers

Reader One

- a) Let's try giving Claribel some ^{aspirin} oxygen.
- b) I can't hear her heart's ^{a beat} But that ^{it} doesn't prove she's dead.
- c) He would whistle to his canary and ^{for} ^{pat} pet his dog.

Reader Two

- a) He ^{good} went home.
- b) The spaceship landed ^{and} right in front of his house.

Reader Three

- a) And then CRASH-BANG, ^{deer} a bear--a big black bear--came into the forest.
- b) And when he ^{saw} was not hungry, the bear went out of the forest with a crash and bang. CRASH-BANG.

Reader Four

Note: every sentence from the text containing the word <baseball> is shown.

- a) The boys on the Tiger's ^{baseball} team were excited.
- b) Bill Evers, the ^{baseball} star, was in town.
- c) They wanted him to write his name on a ^{baseball}.
- d) Ben felt funny about calling a ^{baseball} star.
- e) I'm on the Tigers ^{baseball} team.

- f) He wanted to show the boys how to play better ^{baseball} baseball. Then, just when Bill Evers was showing Ben the right way to hold his bat, [reader stops and looks at the previous page] a newspaper man came in. Bill Evers wrote his name on the baseball.

Reader Five

- a) It must have been around midnight when I drove home, ^{and} as I approached the gates of the bungalow I switched off the ^{lights} headlamps of the car so the beam ^S wouldn't swing ⁱⁿ through the window of the side bedroom and wake Harry Pope.
- b) ^{It had} "What is it, Harry?"
- c) "Listen, Harry," I said, ^{and} ^{leaning} leaned forward and ^{touching} touched his shoulder. "We've got to be quick."
- d) "Come on ^{now} quickly, tell me where it bit you."
- e) He was ^{laying} lying there very still and tense as though he was holding on to himself hard because of sharp pain.
- f) "Who's been bitten?" ^{was} The question came so ^{sharply} it was like a small explosion in my ear.

<baseball> is represented in Table 6.4. Although not readily apparent until the author tells the reader that <Bill Evers was showing Ben the right way to hold his bat>, there were no textual cues other than graphophonemics to indicate that <basketball> was not an acceptable prediction. However, because the reader was monitoring the text for meaning, when he encountered the word <bat>, he realized that his prediction of <basketball> suddenly no longer made sense. When he subsequently encountered <baseball>, he read it as the author intended. It should not come as a surprise that Reader Four was from Indiana, a state with a passion for basketball and without a major league baseball team.

Reader Three demonstrated a similar kind of monitoring, but within the sentence itself. The reader initially predicted <deer> for <bear>. However, after correctly

reading <a big black bear> within the same structure, the reader returned and changed <deer> to <bear>. Although deer are big, they usually are not black. Similarly, the reader substituted <saw> for <was> (a verb for a verb that makes sense up to that point in the sentence), read the following word <not>, and immediately returned to correct the miscue. In both cases, it is the meaning following the miscue that told the reader that meaning was lost and that correction strategies were warranted. In a sense, the text itself gave the reader feedback about the meaningfulness of the predictions.

TABLE 6.5

Miscues Made by Less Proficient Readers

- Reader One**
- a) Once ^{up} upon a time an old man ^{planter} planted a little ^{UC} ^{trunpee} turnip. ^{trun} ^{tru-} turnip.
- b) The old man said, "Grow, grow, little ^{UC} ^{tam-} turnip. ^{tarnp} turnip.
- c) Grow ^{UC} ^{swi-} sweet.
- d) Grow, grow, little ^{UC} ^{trump} turnip. ^{tr-} turnip.
- e) Grow ^{UC} ^{storne} strong. ^{st-} strong.
- f) And the turnip ^{gr-} grew up sweet and ^{UC} ^{strong} strong and big and ^{UC} ^{hungamous} enormous. ^{hung-} hungous. ^{hungamous} hungamous. ^{hung-} hungous. ^{ing-} ingous.
- g) Then one day the old man went to pull it up. He pulled--and pulled ^{UC} ^{couldn't} again. But he ^{couldn't} could not pull it up.

Reader Two

- a) Bob called to his mother. And he ^{showed} her the ^{smoke} smoke.
- b) Then Bob looked out the window. He ^{Saw} kept looking at the ^{Miss} smoke coming out of Mrs. Miller's house.
- c) ^{off} In a few minutes ^{off} a fire truck came down the street.
- d) ^{jumping} Firemen ^{down-} jumped down and ^{blowing} pulled hoses off the truck.
- e) And they ^{there} sprayed water on Mrs. ^{Miss} Miller's house.
- f) When there was ^{they} no more smoke the ^{firemen} stopped spraying the water.
- g) They put the ^{Then} hoses on the fire truck. And the fire truck went away.

Reader Three's behavior also helps to more adequately account for and explain what many teachers refer to as reversals. Graphically speaking, the <d> in <dear> is a reversal of the in <bear> and <saw> is a reversal for <was>. However, we know that readers use more than graphemes when they read. Other systems of language and background knowledge are also used. If the words that precede <bear> and <was> are examined, we see that the prediction of <deer> and <saw> make sense. The substitutions are based, therefore, not only on graphophonemics but also on the use of previous sentence syntax and semantics. The substitutions are not reversals but logical predictions based on the preceding context in which the words are found. As previously noted, it is the subsequent context following each miscue that tells the reader in very direct ways that the substitutions are unacceptable. It is just this moderate use of graphophonemics, along with the use of other systems of language and monitoring for meaning, that characterizes proficient readers.

Before taking a look at the less proficient readers, it is worth noting that these proficient readers were only able to demonstrate the range of their abilities because they were provided the opportunity to read whole texts in an uninterrupted manner. That is, they read long pieces of connected discourse with no assistance or interference from the researchers. If the researcher had prompted a correction for every miscue the reader made, it would have been impossible to know if the reader was able to use context and monitor for meaning because the researcher would have assumed that role. Additionally, it is important to remember that we are examining patterns rather than instances of reading behavior. No one miscue can be used to

assess the proficiency of any particular reader. Rather, it is the profile of miscues across a text that distinguishes effective and efficient readers from those who are struggling.

Unfortunately, many readers, especially those who are struggling, are not provided with opportunities to develop the full range of strategies and self-monitoring abilities that are required for effective and efficient reading. Teachers frequently monitor for their students and enter into the reading process by supplying the student with the miscued words or with phonic strategies. The teacher provides the feedback rather than the text. However, Allington (1983) found that when teachers are silent and allow students to read the text without intervention, the students begin to use more effective reading strategies and become sensitive to the use of context. Rather than the process breaking down, the students actually improved their reading of the text.

The miscues of the two less proficient readers shown in Table 6.5 reflect a far different use of language cues. In general, struggling readers over-rely on the use of graphophonemics, underutilize context, and have difficulty monitoring for meaning (K. Goodman, 1996; Paris, Wasik, & Turner, 1996). This focus on letters and sounds is demonstrated by the fact that most of their substitution miscues are high in graphic and sound similarity. For example, Reader One's substitution of <planter> for <planted> and Reader Two's substitution of <then> for <they> in Table 6.5 visually and auditorily resemble the target word in the text.

Although both of these substitutions violate the syntax and semantics of the sentence, neither reader made an attempt to correct them. To a certain extent, this is because less effective and efficient readers fail to monitor for meaning and often have not developed strategies for correcting violations to the integrity of written discourse. Whereas the proficient readers illustrated in Table 6.4 engaged read-on or reread strategies to help them correct meaning-violating miscues, less proficient readers too often rely on sounding out strategies. When Reader One came to the word <enormous>, for example, she attempted to sound it out eight times. In fact, all of the substitution miscues in the sentence are highly similar in graphics and sound. In general, Reader One's miscues are either nonsense words that make little sense in and of themselves or are real words that do not make sense in the context of the sentence.

In contrast to Reader One, who attempted to sound out most unrecognized words, Reader Two's strategy was to simply skip most words that were not instantly pronounceable. It is almost as if the reader is reading from a series of flash cards with a single word printed on each card. Context is largely ignored.

When working with readers who are overly concerned with graphics and sound, the use of Reading Strategy Wall Charts can be effective in promoting the development and use of a wider range of strategies (Kucer, 1995). During one academic year, Kucer and the classroom teacher, Cecilia Silva, introduced various strategies for overcoming unrecognized words to a class of third grade bilingual students. As each strategy was introduced and experienced by the students, or when students

TABLE 6.6
Reading Strategy Wall Chart

READING STRATEGY WALL CHART

When reading and you come to something that you do not know, you can:

1. Stop reading → think about it → make a guess → read on to see if the guess makes sense.
2. Stop reading → reread the previous sentence(s) or paragraph(s) → make a guess → continue reading to see if the guess makes sense.
3. Skip it → read on to get more information → return and make a guess → continue reading to see if the guess makes sense.
4. Skip it → read on to see if what you do not understand is important to know → return and make a guess if it is important; do not return if it is not important.
5. Put something in that makes sense → read on to see if it fits with the rest of the text.
6. Stop reading → look at the pictures, charts, graphs, etc. → make a guess → read on to see if the guess makes sense.
7. Sound it out (focus on initial and final letters, consonants, known words within the word, meaningful word parts) → read on to see if the guess makes sense.
8. Stop reading → talk with a friend about what you do not understand → return and continue reading.
9. Stop reading → look in a glossary, dictionary, encyclopedia, or related books on the topic → return and continue reading.
10. Read the text with a friend.
11. Stop reading.

discovered a strategy on their own, the teacher wrote the strategy on a large piece of chart paper. The Wall Chart was hung in the front of the room and students were encouraged to use the various strategies listed when they encountered unrecognized words. In the spring of the year, when most of the strategies had been introduced or discovered by the students, the teacher typed the list on 8½" by 11" paper and gave copies to student for each reference. Table 6.6 illustrates how the chart appeared at the end of the year.

Not only do less proficient readers overutilize graphophonemics and have difficulty making use of context, they also believe that each word must be read correctly. The substitution of <couldn't> for <could not> is the best miscue made by Reader One. It modifies the surface structure of the text but has no impact on meaning. However, because Reader One assumed that good readers read exactly what is on the page, she corrected, or overcorrected, the miscue. The miscue is considered overcorrected because there is no need to correct it; the miscue does not change the meaning of the sentence (Y. Goodman, Watson, & Burke, 1987).

TABLE 6.7

Summary of Proficient and Less Proficient Reading Behaviors

<i>Proficient Reading Behaviors</i>	<i>Less Proficient Reading Behaviors</i>
Attempt to make what is read sound like language and make sense	Attempt to identify all of the words correctly
Monitor what is read for sense and coherence	Monitor what is read for correct letter/sound and word identification
Build meaning using the text, their purpose, and their background	Build meaning by attempting to identifying the letters and words correctly
Utilize a variety of strategies when meaning breaks down: reread, rethink, read on and return if necessary, substitute, skip it, sound out, seek assistance, use text aids (pictures, graphs, charts), ignore it, stop reading	Utilize a limited range of strategies when meaning breaks down: sound out, skip it
Selectively sample the print; use a mixture of visual (print) and nonvisual (background) information	Utilize most of the visual (print) information
Use and integrate a variety of systems of language to create meaning	Rely heavily on graphemes, graphophonemics, and morphemes
Vary the manner in which texts are read based on purpose	Read all texts in a similar manner regardless of purpose
Typically correct one in three miscues	Typically correct one in twenty miscues
Attempt to correct miscues that effect meaning	Attempt to correct miscues that fail to resemble the word
"Chunk" what is read	Letter-by-letter processing results in tunnel vision

According to Smith (1994a, 2004), the result of an over reliance on graphophonemics is tunnel vision. STM is filled with letters and sounds, resulting in a loss of meaning. The reader is unable to understand what is being read because other systems of language are ignored. Rather than selecting visual cues from various systems, the reader attempts to process every letter. Proficient readers, however, are selective in the cues employed. They chunk the language processed, using the most informative language cues and appropriate background knowledge. Table 6.7 summarizes much of what has been said about proficient and less proficient readers.

BILITERATE READERS

Reading in two languages is becoming an increasingly common phenomenon in the United States. Regardless of where teachers work, they are encountering

students who are bilingual as well as biliterate. Biliterate students are not engaged in altogether different processes when reading in two languages. However, there are a number of factors that are unique to this population, and understanding how these factors impact the reading process can help teachers promote the literacy development of bilingual students in their classrooms.

By its very nature, the bilingual population is extremely varied. Bernhardt (2000) has noted that second language reading is "a diverse, complicated, and frustrating landscape to traverse, let alone explain or predict" (p. 791). This variation manifests itself in such things as whether or not students first learn to read in their home language (other than English) and then learn to read in the language of the school (English) or whether they first learn to read in English and only later learn the written form of their home language. There is also the issue of whether their home language is maintained at school as the English language is introduced or if the school language becomes a substitute for the home language. Additionally, the degree of oral proficiency in both the first and second language impacts the literacy processes. According to Bernhardt, two critical variables in second language literacy are the degree to which the first language has been developed in oral and written form as well as the linguistic similarity between the two languages.

To address all the possible variations, unfortunately, is beyond the scope of this chapter and this book. The focus here is on comparing and contrasting the cognitive processes used when individuals are proficient readers—efficient and effective—in their home (first) language and in the English (second) language. However, because of the varied circumstances and experiences encountered by bilingual students, care needs to be taken not to over-generalize the findings from the biliteracy research.

In general, there is a positive and supportive relationship between the processes and strategies used in the first and second languages (Allen, 1991; Buck, 1977; Carrasquillo, Kucer, & Abrams, 2004; Fitzgerald, 1995; Jimenez, Garcia, & Pearson, 1995, 1996; Weber, 1996). Individuals who are proficient in two written language systems are frequently able to successfully employ strategies used in the first language for use in the second language. In both languages, readers monitor their processing through such metacognitive procedures as evaluating, revising (e.g., rereading, reading on, substituting), and predicting upcoming meanings and structures. Biliterates make inferences, draw conclusions, and ask questions. In English as well as in the home language, readers draw on their background knowledge of content and the systems of language to make sense of the ideas being encountered. Vocabulary items that are similar in both languages—cognates—such as the Spanish word "producto" for the English word "product," are also relied on in the making of meaning. Except for the use of cognates, proficient biliterate readers employ the same basic strategies discussed in Tables 6.3 and 6.6.

Interestingly, not only do biliterates employ similar strategies in the two languages, but they frequently have a unitary view of reading. According to Jimenez et al. (1996), biliterate students typically discuss their reading processes and

learning to read in a first and second language as two sides of the same coin. As stated by one student in their research, "There aren't really any differences [between reading in English and Spanish]; I mean they're both based on the same thing, how you understand it, how you read it, how you take it, and how you evaluate it and all that" (p. 99). Others have made similar observations (e.g., Cummins, 1988, 1991; D. Freeman & Y. Freeman, 1994).

There are similarities in reading in two languages, but some consistent differences are also evident. Biliterates may translate—code switch—from one language to the other, and this translation occurs in both directions. Occasionally, miscues made in English can be attributed to the use of syntactic knowledge of the first language. The reader may predict a word order that reflects the language with which the reader is most comfortable. This is especially the case when the reader has a strong spoken command of the first language and less of a command of the second. However, as readers develop oral proficiency in the second language, they typically develop increased reading fluency in the second language as well (Bernhardt, 2000).

Although readers successfully employ a wealth of available strategies when reading in both languages, the extent to which monitoring and revision strategies are necessary may vary. It is not uncommon for biliterates to encounter unknown vocabulary more frequently than monolinguals. Like proficient monolinguals, proficient biliterate readers are able to apply various strategies to determine the meanings of these words. However, the repeated need to engage these revision strategies may impact the degree to which the reader is able to comprehend the text. The cognitive energy required to make such repairs may limit the attention the reader is able to apply to understanding the overall meaning of the text. This is in contrast to monolingual readers who typically encounter fewer unknown words and therefore may find it less necessary to engage in revision.

The need for additional monitoring and revision is not language specific, however. The content and structure of the text, as well as opportunities to read in the language under consideration, determine the need to monitor and repair, not whether the text is in the reader's first or second language. It is not uncommon for the biliterate reader's first oral and written language to be one other than English. However, if the school setting does not honor and maintain the reader's home language, and if academic subjects are encountered largely in English, monitoring and repair may be more frequent in the child's home language than in English.

Interestingly, in her review of the research on biliterates, Fitzgerald (1995) found that regardless of the language being read, unfamiliar content had a more significant impact on the biliterate reader than unfamiliar text structure. Weber (1996), Allen (1991), and K. Goodman and Y. Goodman (1978) reported similar findings concerning the relationship between background and linguistic knowledge more generally. As previously noted, background knowledge tends to "trump" or have a dominating influence on the reading process. More importantly, Weber also found that it was through direct experience with the concepts at hand, rather than

simply through the introduction of vocabulary words, that biliterate readers can be provided with the necessary background knowledge to effectively process the English written discourse.

Similar patterns are found when proficient bilingual students reading in English are compared and contrasted with proficient monolingual students reading in English. Both groups engage metacognitive strategies and monitor for meaning. They generate inferences, recall superordinate ideas, and focus more on content than on function words. At times, however, the bilingual readers did not use context as effectively as monolingual readers and monitored their comprehension more slowly. These differences, however, may be developmental; that is, with time and experience, the bilingual students will come to use context as effectively as the monolingual readers. More importantly, they will be proficient in reading two languages rather than one.

READING: AN ALTERNATE VIEW

Throughout this chapter, reading is depicted as a selective and constructive process. The reader is envisioned as an active participant in the construction of meaning, picking up only the most salient linguistic cues and ignoring others. Through the use of background knowledge, the previous text processed, and the print selected, the reader actively builds a prediction or hypothesis for the written discourse encountered. This perspective, what I am terming the selective sampling view, however, represents only one of two predominant perspectives in the literacy field. Although it is beyond the intent and scope of this book to present multiple perspectives within each of the various dimensions of literacy, a brief overview is given of an alternative understanding, what I am calling the dense processing view, of the reading process. Table 6.8 summarizes the key areas of contention between these two perspectives which are compared and contrasted in the following discussion.

Disputes over the nature of the reading process have a long history in the psychological literature (e.g., Cattell, 1885; Gough, 1972; Huey, 1968/1908). However, the use of computer-controlled display screens, video cameras, and eye tracking technology have produced reading data that was previously unavailable. Drawing upon this data, a number of researchers have recently claimed, and with a degree of scientific certitude not previously seen in the field, that "the convergence of basic research on the reading process . . . is so strong" that it has led to a "Grand Synthesis" (Stanovich, 1998, p. 44). To a large extent, this synthesis is centered on the understandings that (a) "skillful readers virtually process each individual letter of every word" (Adams & Bruck, 1995, p. 7), (b) the processing of individual letters and words is largely automatic and obligatory, (c) the processing of individual letters and words is not impacted by other language systems, i.e., the surrounding linguistic context, or background knowledge, and (d) that struggling readers rely on the systems of language and background knowledge as a compensatory strategy due to poorly developed word recognition—graphophonemic—skills.

TABLE 6.8

Dense Processing Versus Selective Sampling in Reading

<i>Dense Processing</i>	<i>Selective Sampling</i>
Fixations	
Most of the visual array (print) is processed	Print is selectively sampled and the brain utilizes strategies to limit the amount of perceptual information it uses to just that which is necessary
Automaticity	
Words are recognized almost instantly and involve relatively little cognitive attention and resources	Words are recognized as quickly as they are due to use of the previous context and selective sampling
Obligatory—readers identify words regardless of intentions or focus of attention	Dense processing causes tunnel vision—the inability to process and make sense of the graphics put into working memory
Automaticity times vary depending on word length and how frequently the word is used in written language	
Context	
Expectations and predictions are not factors in word identification	Word identification is influenced by background knowledge and the higher-ordered systems of language (context) as well as by graphics
Word identification is encapsulated, i.e., not impacted by background knowledge or higher-ordered systems of language (context), which frees cognitive resources for comprehension	
Context only supports accurate prediction of upcoming words 20–35% of the time	
Use of context takes time and effort, thereby making processing of print less efficient and effective	
Proficient and Nonproficient Readers	
Poor readers rely on context because they lack word recognition skills; use of context is a compensatory strategy	Poor readers lack the ability to effectively and efficiently make use of previous context upon which to form tentative hypothesis as to what any given word might be
	Poor readers are unable to select word parts or letters within a word that will provide the most useful information for word identification

Advocates of dense processing argue that reading, at least initially, is print driven and that most of the visual array is processed. Reading, rather than being a psycholinguistic guessing game in which vision is incidental, involves the processing of virtually every letter and word on the page. In fact, readers are said to be reluctant to predict upcoming words through the use of context and background knowledge; they prefer to process words letter by letter. This reluctance is probably due to the fact that context does not provide enough information to support the formulation of accurate predictions. In general, these researchers argue that the use of context can only support accurate word predictions approximately 25% of the time. Therefore, word recognition through letter identification is the foundation of the reading process.

As letters are perceived, they are clustered into familiar spelling patterns and frequently recoded into sound (phonological recoding). According to Stanovich (1998), the issue of recoding is not one of if, but of how much; recoding is obligatory and readers identify words regardless of their intentions or focus of attention. The degree to which recoding occurs before a word is recognized (i.e., phonological mediation) is related to the frequency of the word and the spelling patterns involved. Low-frequency words containing less common spelling patterns tend to be recoded more fully than do high-frequency words with more common spelling patterns. For example, <made> is a high-frequency word commonly encountered in written discourse. Additionally, the consonant–vowel–consonant–silent <e> sequence is predictable within English orthography. Therefore, there would be less phonological recoding for <made> than <sword>, which is less frequent as well as phonologically less predictable.

Given the requirement that each letter must be processed, it might be thought that STM would have difficulty holding all of this information for the duration necessary. Depending on the particular word, the capacity of STM might be reached before word identification has occurred, or a subsequent fixation might replace its content before processing had been completed. However, the limitations of STM and the immediate manner in which readers recognize most words suggest that some degree of automaticity has been developed. That is, the speed of reading, given the dense processing in which readers engage, is largely possible due to the fact that words are recognized almost instantly (Adams & Bruck, 1995; Just & Carpenter, 1987; Stanovich, 1996). Although word recognition does involve some cognitive attention and resources, it is a relatively effortless process for skilled readers. In contrast to other processes, however, such as comprehension, which involve the allocation of attention and memory, the automatic process of word recognition is relatively undemanding of cognitive resources (Walczyk, 2000).

Automaticity becomes possible through the overlearning of letter and spelling patterns based on the readers' multiple encounters with written language. Readers build and store in memory orthographic patterns and common letter combinations that reflect the interconnectedness among letters within the language. The relations between letters and sounds have become so well learned that fewer cognitive resources are required for word identification. This allows the reader the time

and cognitive capacity to construct an interpretation for the clause or sentence in which the words are embedded. However, as is the case with phonological recoding, automaticity is a question of degree, not an either-or proposition.

According to Stanovich (1996), expectations and predictions are not primary factors in word identification and feature extraction from words is not impacted by higher-ordered systems of language or world knowledge. This situation, termed information encapsulation, has two advantages for readers. First, it allows the print to be processed without distortion—i.e., readers perceive what is actually written. Distortions or misreadings are less likely because information outside of the word does not penetrate processing mechanisms. Secondly, it allows readers to process the print as efficiently as they do. Readers need not closely monitor the accuracy of the words identified because of possible influences from outside sources of information. Encapsulation largely prevents such influences or encroachments from occurring. Readers are able to use their freed cognitive resources to develop an understanding of the words and sentences that have been processed (Adams, 1990). It is at this point in the process—i.e., after words have been identified—that the use of context becomes critical and useful (Kintsch, 1998).

The ability of the reader to quickly and effortlessly map letters to sounds to words through phonological recoding is perceived as critical to effective and efficient reading. Word recognition accounts for much of the variance in reading ability, and poor readers demonstrate poor letter and word attack skills. In contrast to the previous analysis of miscues made by proficient and less proficient readers, within this view it is the less efficient and less effective readers who rely on context because of poor word identification skills. In fact, the use of context is a compensatory strategy that is only utilized when there are deficits in lexical accessing (West, Stanovich, & Cunningham, 1995). That is, proficient readers rely on their knowledge of words to identify them whereas less proficient readers rely on context because of word recognition deficiencies. These attempts by poor readers to use context to aid in the identification of words, however, are largely unsuccessful. Skillful readers are only able to correctly predict upcoming words based on context between 20% and 35% of the time (Adams & Bruck, 1995; Pressley, 1998; Stanovich, 1996). Additionally, the use of context upon which to base predictions takes time and effort, thereby making the processing of print less efficient as well as less effective. This is why as word recognition abilities increase, the use of background knowledge and higher-ordered systems of language decrease (Stanovich, 1996, 2000). Proficient readers can ignore context because they have no difficulty identifying words on the printed page.

As has already been discussed in this as well as in the previous chapter, K. Goodman (1993, 1996), Smith (1994a, 2004), and Kucer and Tuten (2003) among others, have argued that readers selectively “pick” from the graphic display. Not all available print is processed; rather, the brain selects just that which is necessary for the construction of meaning. In fact, the brain actually utilizes “strategies to limit the amount of perceptual information it uses to just enough for

making sense of the print and confirming its predictions. “Perception is what you *think* you see” (Goodman, 1996, p. 40). Proficient readers also utilize the syntactic and semantic environment within which any word is embedded upon which to build their perceptions (Rumelhart, 1994). Word identification is not so much encapsulated as it is impacted and facilitated by the various systems of language and the background knowledge of the reader.

Krashen (1999), in an analysis and evaluation of eye fixation research, has argued that these studies themselves indicate selective sampling on the part of readers. He notes that Just and Carpenter (1987) acknowledge in their own research that 60% of content words and 20% of function words may not receive a fixation. Given the difference in linguistic predictability between these two types of words, as discussed in the previous chapter on perception, it is not surprising that readers tend to fixate more on content rather than function words. Content words are not as easily anticipated and are more informationally salient.

Research by Ehrlich and Rayner (1981) and Zola (1984), according to Krashen (1999), also reveals that as words become more predictable from context, fixation duration is reduced. Readers need not fully sample the visual display because of the previous context. “Rather, the reader needs to note enough of the word to confirm what it is” (Krashen, 1999, p. 6). Variability in fixation frequency and duration, perceptual span, and words receiving a fixation, therefore, are due not only to the particular word itself, but to the previous context that allows selective sampling to occur. Processing speeds are only possible because readers are capable of making use of the previous text as well as the target word itself upon which to build their predictions, not because of automaticity.

Finally, dense processing may actually cause readers to struggle rather than facilitate their interactions with print. Struggling readers have not developed those processing strategies that allow them to selectively sample the print. They lack the ability to effectively and efficiently make use of previous context upon which to form tentative hypotheses as to what any given word might be. Struggling readers are unable to use previous story and sentence meaning as well as sentence syntax to both narrow or restrict the upcoming possibilities and to base predictions. Additionally, they are unable to select those word parts or letters within the word that will provide the most useful information for word identification (Goodman, 1996; Smith, 1994a, 2004; Weaver, 2002). This view is in marked contrast to those of such previously referenced researchers as Adams and Bruck (1995) and Stanovich (1998), who cite the lack of developed word recognition skills as the reason less proficient readers are forced to rely on context.

It is unlikely that the “reading wars” will be settled anytime soon. Nor is it anticipated that a consensus will be reached, with each camp conceding a little to reach a compromise. Each paradigm utilizes different research models, collecting, analyzing, and interpreting data in radically different ways. As is readily apparent, given that there is very little overlap between these two views, fruitful discussions between advocates of each perspective become increasingly difficult.

CONCLUSIONS

In this chapter, we have examined the role of the language user as meaning maker. Rather than passively "taking in" whatever the author has to offer, readers actively select and construct meaning as they work their way through a text. In many ways, this construction of meaning is similar to that of a scientist engaged in an experiment. The reader samples the data (print), constructs a tentative understanding (prediction) based on the data selected and background knowledge, tests (monitors) the hypothesis as more data are gathered, and revises when necessary. Effective and efficient readers sample from a wide range of systems of language, whereas less proficient readers tend to focus on the lower level systems (graphophonemics and morphology). What is ultimately comprehended depends on such factors as the reader's background, purpose, context, and the content of the text. It is in the following chapter that the role of background knowledge is more extensively addressed.

7

Understanding Written Discourse

This chapter extends our understanding of the reading process by highlighting the act of text comprehension. The goal of any reader is to understand the text being encountered, and there are a number of cognitive factors that impact how a text is ultimately understood. We begin with an examination of the nature and role of background knowledge on meaning making. We then shift our attention to the relationship between vocabulary knowledge and comprehension. The chapter concludes with a discussion of context, meaning, and recall. Once again, I present a series of demonstrations to help you more fully discern what is involved in the process of constructing meaning when the reader puts eye to print.

THE NATURE AND ROLE OF BACKGROUND KNOWLEDGE IN UNDERSTANDING

In Table 7.1, a short story about a character named Pat is presented in four parts. This story has been adapted from R. Anderson, Reynolds, Schallert, and Goetz (1977). On the lefthand side of a piece of paper, number from one to four. If possible, do this activity with a friend so that you can compare and contrast your responses to the story. Now, cover all but the first part of the text. Read the first part and write a one- or two-sentence interpretation of what is happening. Don't just write what was said; rather, write about what you think is *happening* in the story. Support your interpretation using information from the story. Uncover and read the second part. Does your initial understanding still make sense? If it does, support it with additional information from the story. If your interpretation no longer is viable, generate and support a new one. Using this procedure, continue throughout the four parts of the story. If doing this activity with a partner, after you finish reading all four parts, share all of your interpretations and the reasons for each.

If your responses are like those of other readers (see Table 7.2), you discovered a number of things about the process of comprehending. One aspect of