CHAPTER ONE

What Does It Mean to Be Strategic?

We begin this text by clarifying and defining our use of the term *strategies* and what it means to be *strategic*. Over the years the term *strategy* has taken on varied meanings within the field of literacy instruction (Dole, Nokes, & Drits, 2009) and has often been used synonymously with the term *skills* (Afflerbach, Pearson, & Paris, 2008).

We define cognitive strategies as actions an individual selects deliberately to attain a particular goal. Our definition is similar to that of Dole et al. (2009), who defined a cognitive strategy as "a mental routine or procedure for accomplishing a cognitive goal" (p. 348). Cognitive strategies, then, are any mental actions or procedures we use deliberately when we want to accomplish a particular goal. *Goals* refer to the "particular reasons, intentions, or motives that persons have for their actions" (Alexander & Jetton, 2000, p. 297). If our goal relates to reading, then we might use specific reading strategies. If our goal is related to solving mathematics problems, then we might use specific mathematics strategies. If our goal is to drive home from work safely, then we might use safe driving strategies. Thus, cognitive strategies include a broad range of mental actions.

Given that the goal of this text is to help readers become strategic, we will narrow our definition of cognitive strategies to pertain specifically to reading strategies. Afflerbach et al. (2008) defined reading strategies as "deliberate goal-directed attempts to control and modify the reader's effort to decode text, understand the words, and construct meanings of text" (p. 368). Common to both definitions of cognitive strategies and reading strategies is the notion that *strategies* are deliberate and help one attain a goal. While reading, the reader must intentionally choose to use strategies, and the intentional choice of a strategy is aimed at attaining a particular goal. For readers that goal may be, as Afflerbach et al. (2008) noted, to decode text, to understand words encountered in the text, or to construct meaning.

In contrast to *strategies*, *skills* are fluid, automated processes that are enacted without the reader's conscious awareness. Afflerbach et al. (2008) defined reading skills as "automatic actions that result in decoding and comprehension with speed, efficiency, and fluency and usually occur without awareness of the components or control involved"

(p. 368). Two features distinguish *strategies* from *skills*: automaticity and intentionality (Afflerbach et al., 2008; Alexander, Graham, & Harris, 1998; Alexander & Jetton, 2000). Skilled readers are able to fluidly and automatically decode text and comprehend it. Skilled readers typically do not have to stop to decode a word or to think about which strategy might help them understand the text better. Skilled reading is smooth and uninterrupted, and it is typically faster than strategic reading because it does not involve conscious decision making (Afflerbach et al., 2008). This does not mean, however, that skilled readers are never strategic. In fact, Graesser (2007) noted that even skilled adult readers have difficulty comprehending complex informational texts. Thus, it is not just emergent readers, but all readers—even skilled and successful readers—who are strategic at some point. Graesser (2007) suggested that "a successful reader implements deliberate, conscious, effortful, time-consuming strategies to repair or circumvent a reading component that is not intact" (p. 4). That is, skilled readers slow down and become strategic when they notice a problem and realize that they may not be able to accomplish their goal (Afflerbach et al., 2008). This ability to notice problems as they arise is also known as *monitoring*. Cognitive monitoring is one of the hallmarks of successful strategic reading, for if readers cannot detect problems while reading, or notice that attaining their goal is in jeopardy, then they cannot enact strategies to repair the problem. Afflerbach et al. (2008) note that readers are also strategic when they are initially learning to read. That is, as they are learning to identify letters, decode words, read orally, and comprehend, readers are more deliberate in their efforts. Thus, strategic reading processes are often more evident and more deliberate among emergent readers.

Because being strategic is effortful and time-consuming and requires intentionality, it also requires a level of motivation, interest, and a sense of agency (Alexander et al., 1998; Alexander & Jetton, 2000). It is often the case that you may know how to do something (e.g., using a strategy), but you may not feel like doing it at a particular time. Thus, readers may know very well how to use a given comprehension strategy, and they may know when and why they should use it, but if they are not motivated or interested in putting forth the time and effort to actually use the strategy, they may not do so.

Some have noted that there is often confusion between the terms *strategies*, *skills*, and *activities* (e.g., Dole et al., 2009; Shanahan et al., 2010). Dole et al. (2009) and Shanahan et al. (2010) noted that in core reading programs, comprehension often appears as a series of separate skills such as drawing conclusions and sequencing. Often these comprehension *skills* are "taught" and practiced by having students complete workbook pages. Both Dole et al. (2009) and Shanahan et al. (2010) noted that instructional activities and exercises that require students to complete worksheets to practice skills such as drawing conclusions are *not* ways of teaching readers to be strategic. They note that rarely do such activities require readers to think and make decisions about what they would do in their heads to improve their comprehension.

Likewise, graphic organizers such as K-W-L, Venn diagrams, and story maps are also considered instructional activities. If students are taught how to choose and use graphic organizers to enhance their comprehension while reading, then these tools may aid in strategic processing, but in and of themselves they are *not* strategies. Using a graphic organizer requires a *thoughtful* reader who *deliberately* elects to use it *while reading* as a means of fostering comprehension. If teachers suggest (or require) that students "fill out" or complete a graphic organizer while reading, then the organizer is being used as an instructional activity; readers are not consciously and deliberately choosing to use the graphic organizer on their own to enhance their comprehension. If teachers suggest (or

require) that students complete graphic organizers *after* reading, then the organizers are being used as assessments. In either case, if the teacher (or anyone other than the reader) suggests using a graphic organizer, it is not a strategy because the reader is not consciously and deliberately electing to use the graphic organizer of his or her own volition.

Dole et al. (2009) also suggest that instructional practices or teaching activities/techniques, such as the directed reading–thinking activity, the language experience approach, or Making Words, should also not be referred to as *strategies*. They note that these instructional practices are used by teachers to attain an instructional objective. Inanimate objects such as a graphic organizer, or activities such as Making Words, are incapable of deliberately planning, selecting, evaluating, monitoring, and regulating behavior. Only *people* are capable of strategic thinking and processing. In this text, then, the term *strategy* refers to the deliberate cognitive process a person uses in selecting, enacting, and monitoring a plan to attain a goal. Thus, we distinguish between *strategies*, *skills*, and *instructional practices/teaching activities* in relation to the degree of intentionality, the level of automaticity, and the individual enacting the behavior.

Thus, being strategic requires the reader (1) to have a goal in mind, (2) to deliberately choose a series of strategic actions to help attain the goal, (3) to have the motivation to actually enact the strategic behaviors, (4) to have the ability to monitor the whole process to determine whether the goal is being attained or not, and (5) to have the ability to make adjustments as needed to ensure that the goal is attained successfully (Afflerbach et al., 2008; Paris, Wasik, & Turner, 1991; Pressley, Borkowski, & Schneider, 1989). This means that strategic readers are actively aware of their goals as readers; they are engaged in making conscious decisions about the reading process and which strategies they are using to attain their goals, and they are monitoring their process. To understand fully what it means to be strategic *while reading*, it is helpful to examine the many strategic behaviors we employ in our everyday lives. Consider the daily task of driving home from work. At times we accomplish this task in such an automated mode that we arrive home and wonder whether we really stopped at a particular stop sign or drove by certain landmarks. Driving a familiar route becomes a highly routinized process that requires little cognitive effort. In effect, we are operating on automatic pilot (Garner, 1987).

Now consider the same task—driving home from work—having heard, before, about a terrible traffic accident that is tying up the main artery leading home. Garner (1987) referred to these moments as "aha moments" (p. 19) in which we become metacognitively aware of a problem. These metacognitive "aha moments" alert us to the need to snap out of automatic pilot (i.e., our regular, routinized, or automatic way of accomplishing a goal). As these moments unfold, we begin to think and act strategically, processing a multitude of thoughts and plans in just a few milliseconds: "How long will that route be tied up? Should I just go forward and wait in the traffic? What alternate routes can I take? Should I just stay at work a little while until the traffic clears?" At this point each of these plans is possible, until we begin to consider the conditions in which this event occurred: "When there's an accident on that road, it can take hours before the traffic clears. I have a meeting at 7:00 P.M. for which I can't be late, and I have to stop at the store and pick up groceries for dinner." Given these conditions, we might decide not to waste any time and choose to take an alternate, less direct route around the accident. This entire process often takes less than a second. We enact thousands of these tiny strategic processing sequences throughout the course of a day. Sometimes the planning is for a much larger or complex event (e.g., a wedding) that requires much more thought and preparation. For such complex events a sequence of strategies, rather than a single strategy, is

enacted (Pressley, Borkowski, et al., 1989), but for the most part we enact these strategic sequences so quickly that we hardly notice they are taking place.

What Is Involved in Strategic Processing?

Strategic processing occurs when an individual plans, makes conscious choices, monitors progress, evaluates, and regulates his or her own behavior (Alexander et al., 1998; Alexander & Jetton, 2000; Afflerbach et al., 2008; Dole et al., 2009; Hacker, 2004; Paris, Lipson, & Wixson, 1983; Paris et al., 1991; Pressley, 2000; Pressley, Borkowski, et al., 1989). In the first driving scenario, on automatic pilot, little strategic processing occurred because it was not necessary for a routine drive home from work. However, the second scenario was quite different. Figure 1.1 depicts the strategic processing that occurred during this scenario. The process began with an attainable goal of arriving home. The moment we heard that an accident had occurred on the major highway leading home, we became aware of a problem. This "aha moment" or "metacognitive awareness" activated a planning phase. Baker and Beall (2009) note that metacognition generally consists of two parts: (1) knowledge about cognition, and (2) regulation of cognition. When we regulate our cognition, we are engaged in self-regulation and a closely related construct: executive functioning. It is the self-regulation aspect of regulating cognition that is particularly important in this example. Self-regulation within the control aspect of metacognition includes the ability to plan, monitor, and evaluate. Thus, in this example, as soon as we became aware of the problem (i.e., the accident on the main highway leading home),

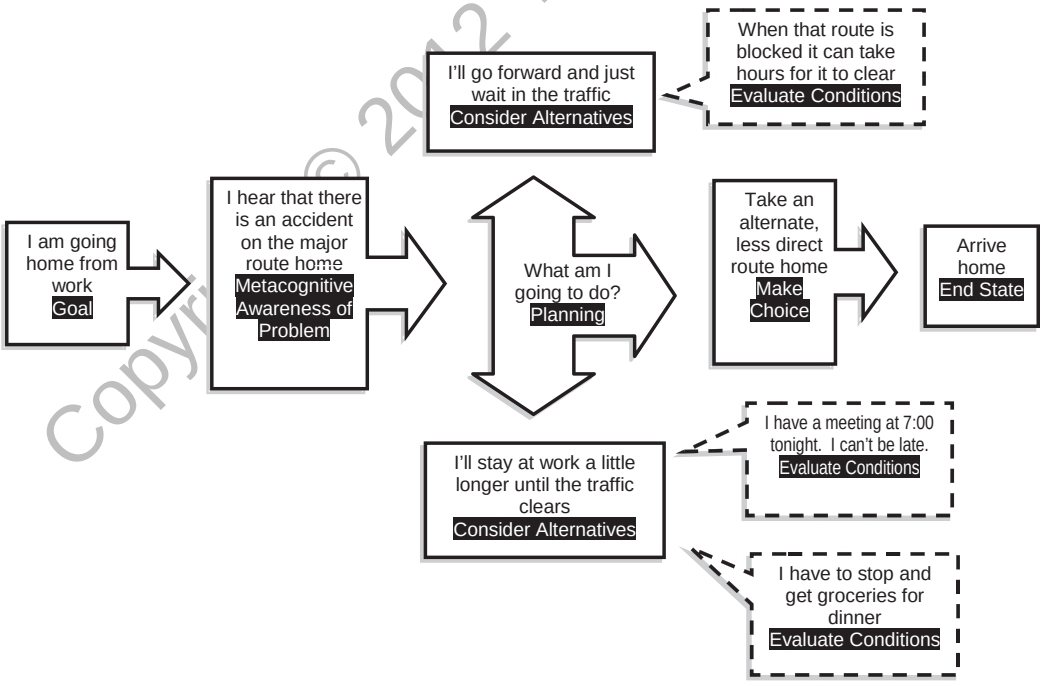

FIGURE 1.1. Diagram of strategic processing.

we began the self-regulation process, which involved planning an alternate way of getting home. Thus, a key aspect of being strategic involves planning. Planning occurs whenever we realize that something has gone wrong, when we realize we may not attain our goal, or when we realize that a change is warranted in a usual procedure. In this instance, had there been no realization of a problem, we probably would have driven home on the usual route. Without a strategic plan or intervention, we would have wound up in traffic. However, with awareness of the problem, we begin to plan different ways to attain our goal by considering various alternatives: waiting in the traffic, staying at work until the traffic clears, or taking an alternate route. With these alternatives in mind, we begin to weigh each in terms of its costs and benefits in relation to the context, or conditions, surrounding this circumstance. This ability to "weigh" the pros and cons of each possible plan is the evaluative part of self-regulation. Given the 7:00 P.M. meeting and the need to stop for groceries on the way home, there clearly is no time to wait. The decision crystallizes: *Take an alternate route home*. This evaluative thinking helped us make a decision about which plan to enact to attain our goal of arriving home. It is our intentional self-selection of a means to an end that makes our behavior *strategic*.

Goals that are attained by accident or chance do not involve strategic behavior (Paris et al., 1983). Consider a variation of the previous example in which it is our first week on the job in a new city. We do not hear about the traffic accident prior to leaving work. Not knowing the area very well, we inadvertently make a wrong turn onto a less direct, alternate route, and it steers us around the traffic accident. Unknowingly, we have avoided the congested route and attained our desired goal. In this example we are not acting strategically. Taking the alternate route was an accident involving no planful thinking, evaluation of the situation, or intentional decision making.

Likewise, obedient responses undertaken because of an external suggestion or demand are not strategic (Paris et al., 1983). For example, let's say that just prior to leaving work, the boss told us about the accident on the highway and suggested that we take an alternate route home in order to be able to arrive back at work in time for the meeting at 7:00 P.M.. We take the alternate route not because of a deliberate, well thought-out plan but because it was suggested to us as the best solution.

Why Is Strategic Processing Important?

We have known for decades that teaching the type of higher-level thinking required for strategic processing is not a regular part of the school curriculum (e.g., Durkin, 1978–1979). Dole et al. (2009) noted that two seminal studies by Duffy, Roehler, and their colleagues helped change the face of reading instruction and provided a glimpse of what true strategies instruction could look like (Duffy, Roehler, Meloth, Vavrus, Book, et al., 1986; Duffy, Roehler, Sivan, et al., 1987). These studies helped teachers and researchers see that when teachers provided explicit explanations of what strategies are, when they should be used, why they should be used, and how to perform them, students' reading achievement on standardized, nonstandardized, and maintenance measures improved.

In their examination of nine exemplary first-grade teachers, Wharton-McDonald, Pressley, and Hampston's (1998) observations found that among other factors, effective teachers provided explicit instruction, used extensive scaffolding, and encouraged self-regulation. Pressley et al. (2001) replicated these findings with a larger sample of first-grade teachers. Unfortunately, in a similar study of fourth- and fifth-grade classroom

teachers, Pressley, Wharton-McDonald, Mistretta-Hampston, and Eschevarria (1998) found little to no evidence of some of the effective practices found in first-grade classrooms (as in Wharton-McDonald et al., 1998; Pressley et al., 2001). That is, there was little explicit instruction in comprehension strategies, and students were rarely encouraged to become self-regulated readers.

Thus, about every decade or so we are reminded of Durkin's (1978–1979) plea that we move beyond monitoring readers' ability to complete worksheets and begin to explicitly teach readers how to comprehend and how to be strategic as they comprehend. The research has been unequivocally clear that providing explicit instruction about strategies helps students learn to process text strategically and enhances achievement. The most recent practice guides published by the U.S. Department of Education's Institute of Education Sciences indicated that, for both primary grade readers (Shanahan et al., 2010) and adolescent readers (Kamil et al., 2008), there is strong evidence that providing explicit strategies instruction enhances reading comprehension achievement. Unfortunately, explicit strategies instruction remains a rarity. Perhaps instruction related to strategic processing is not included in schools because it is difficult to do well. Research has shown that learning to become a strategies teacher is difficult and that it takes at least 3 years to become a proficient teacher of strategic processing (Brown, 2008; Brown & Coy-Ogan, 1993; Duffy, 1993a, 1993b; Pressley, Goodchild, Fleet, Zajchowski, & Evans, 1989). Nevertheless, the value of teaching learners how to process text strategically is grounded in a wealth of sound research and theory demonstrating enhanced learning (Pressley, Goodchild, et al., 1989).

In addition to enhancing students' achievement on standardized and nonstandardized measures of reading, Paris et al. (1991) highlighted six reasons for teaching students how to become strategic readers (see Figure 1.2). First, strategies enable readers to elaborate, organize, and evaluate information contained in text. When readers can elaborate and evaluate information contained in text, it shows that they are processing text at higher levels. When readers are able to organize information contained in text, it helps them remember and recall what they have read.

Second, teaching students to read strategically can coincide with their cognitive development in other areas. That is, as children learn to become strategic readers, they become familiar with the use of strategies for enhancing attention, memory, communication, and

1. Strategies help readers elaborate, organize, and evaluate information in text.
2. Helps readers become familiar with using strategies to enhance attention, memory, communication, and learning.
3. Readers take control of their own learning.
4. Strategic processing requires metacognitive development and motivation. Therefore, being strategic fosters metacognition and motivation.
5. Strategic processing is valuable because it can be taught to children.
6. When students become strategic readers, growth and development are promoted across the curriculum.

FIGURE 1.2. Six reasons to teach students to become strategic readers. Based on Paris, Wasik, and Turner (1991).

learning. Many aspects of strategic processing carry over into other areas (e.g., planning, monitoring, evaluating), and when readers learn to be strategic as they process text, they are able to transfer the strategic mindset into other curricular areas more easily.

Third, because strategies are self-selected and can be used flexibly, readers take control of their own learning as they acquire a larger repertoire of strategies. When readers take control of their own reading, they become self-regulated, independent learners who can recognize and resolve decoding and comprehension problems when they encounter them.

Fourth, strategic processing requires, and therefore fosters, metacognitive development and motivation. In order to be strategic, one must be aware of the need to use strategies. This awareness involves metacognitive processes. Thus, when readers are able to recognize the need to use a strategy, they are in the process of developing metacognitive ability, which is essential for successful reading. As well, readers who recognize the need to use strategies and actually choose to use strategies to help them as they read thereby demonstrate that they are motivated.

Fifth, strategic processing is valuable simply because, as research shows, it can be taught to children. If we knew strategic processing was important, but it was too difficult for children to learn, that difficulty might suggest that it need not be taught. However, the research is quite clear that even very young children can learn to be strategic.

Sixth, teaching students to become strategic readers promotes their growth and development in all areas of the curriculum. When students learn to become strategic, they are learning to be metacognitive. As noted earlier, these metacognitive abilities include the ability to reflect on their own knowledge and the ability to regulate their own cognition. The latter ability, which includes self-regulatory functions such as planning, monitoring, and evaluating, is critical to all learning processes, not just reading.

What Are Cognitive Strategies?

As noted earlier, there is a difference between cognitive strategies and reading strategies. The difference is primarily associated with the fact that cognitive strategies are more general and can be used in several different domains, whereas reading strategies are more specific to the domain of reading. According to Prawat (1989), strategic behaviors involve a range of techniques from heuristics to general control strategies (see Figure 1.3). Pressley, Goodchild, et al. (1989) described a similar range of strategic processes. However, they suggested that the range extended from "task-limited" strategies to "across-domain" strategies. That is, "task-limited" strategies, like Prawat's (1989) "heuristic techniques," are useful only in specific situations and in specific domains. "Across-domain" strategies, like Prawat's (1989) general control strategies, are broader and can be applied in a variety of situations and across several domains.

Located on the far left of Figure 1.3, heuristic techniques (or task-limited strategies) enable one to access relevant information during problem solving. As well, they do not require much cognitive processing and are considered to be at the lower end of the executive control continuum. Heuristics are considered "tricks of the trade" that are used in particular circumstances to aid performance. Examples of heuristics include teaching students to look at headings or introductions before reading, or teaching them a mnemonic to help them remember certain information (e.g., HOMES to help remember the

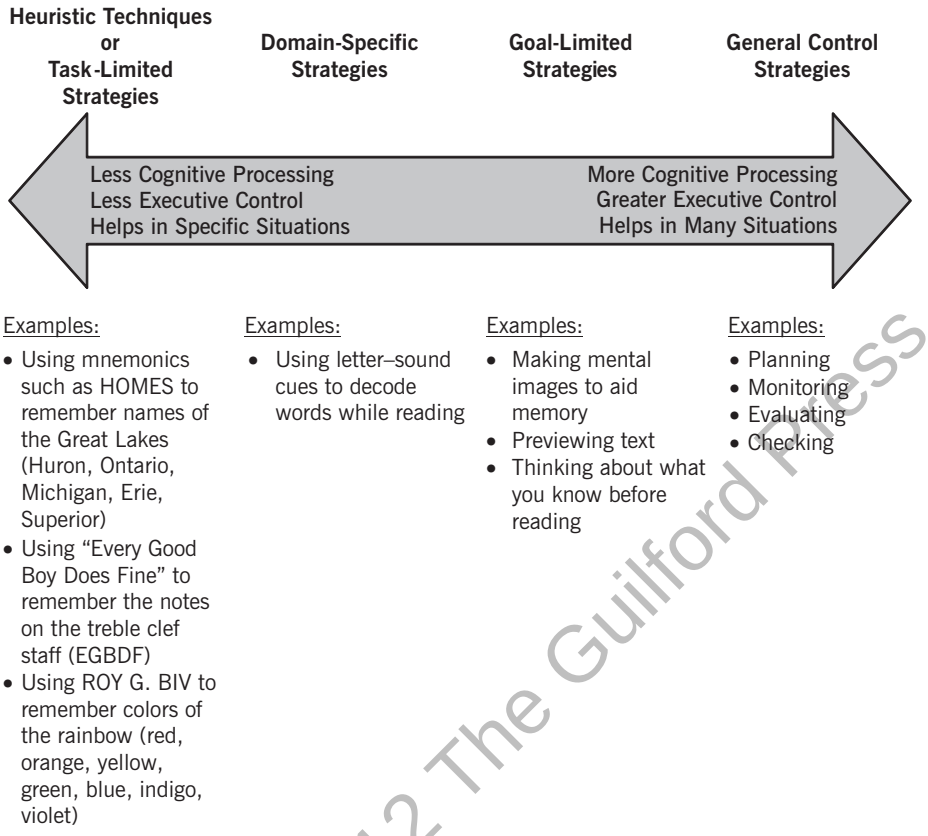

FIGURE 1.3. Range of strategic behaviors.

names of the Great Lakes in the United States, ROY G. BIV to remember colors of the rainbow, "Every Good Boy Does Fine" to remember notes on the treble clef staff). Heuristics do not necessarily transfer to new, possibly relevant situations. That is, by teaching students to use a heuristic to remember the names of the Great Lakes, this does not mean that they will suddenly become aware of many new heuristics and use them in other situations. Heuristics do not generally transfer or generalize to other domains of learning.

General control strategies involve the higher end of the executive control continuum and are more generalizable (Prawat, 1989). That is, general strategies such as planning, monitoring, evaluating, and checking retain their essential properties in any domain (e.g., reading, writing, mathematics). For example, the process of planning—of carefully considering possible alternatives prior to embarking upon a task—is essentially the same in any domain. Planning was involved in the driving scenario described earlier; it would also be used if one were planning to study for a test. No matter what domain, planning always involves considering the possible, specific actions needed to attain a goal. Such general strategies require more cognitive processing than domain-specific ones, thereby requiring greater executive control, or management, on the thinker's part.

A domain-specific strategy, such as using letter–sound cues to decode unfamiliar words, is obviously specific to reading. That is, you cannot use that strategy to help in

another domain such as solving mathematics problems. Because domain-specific strategies are less generalizable and require less cognitive processing to apply, they are considered to lie at the lower end of the executive control continuum, as seen in Figure 1.3.

Goal-limited strategies, such as making mental images to enhance memory, are more generalizable in that you might use this strategy to envision story events, which will help comprehension while reading, or you might use it to help remember a list of grocery items. Goal-limited strategies are not as generalizable across domains as general control strategies because they are limited by the goal that they help one achieve (e.g., remembering, comprehending, problem solving).

As noted earlier, cognitive strategies of any form require intentionality, and intentionality means that the strategic process is available for introspection—it can be examined, discussed, and analyzed publicly or privately. In contrast, acquired *skills* are executed automatically and applied unconsciously (Afflerbach et al., 2008; Paris et al., 1991). The first driving scenario is an example of a skilled response. Arriving home and realizing that we were not aware of whether we stopped at signals or stop signs is an indication that we were using an automatic skill that had been acquired and perfected through repeated practice. Afflerbach et al. (2008) noted that, for novices, emerging skills might be used as a strategy if they are applied deliberately. Likewise, strategic processing can become automatic if practiced and repeated frequently (Afflerbach et al., 2008; Pressley, Borkowski, et al., 1989; Pressley, Woloshyn, & Associates, 1995).

What Are the Characteristics of Good Strategy Users?

To identify the characteristics that good strategy users possess, Koskinen and Blum (2002) have suggested thinking about a topic on which you consider yourself to be an expert. Think about the qualities you possess that make you an expert in that area.

Consider, as an example, that one of us (Janice) is an expert in waxing cars. She has a fair amount of knowledge about waxing cars by hand. She knows that there are many different types of waxes, most of which do generally the same job. Some give a glossier shine but do not last as long or hold up as well when exposed to various weather conditions; others do not provide as glossy a shine but hold up better. She knows the procedures for waxing a car by hand. She knows when and where it is best to wax cars—away from direct afternoon sun—and she also knows why it is important to wax a car. This information shows that, as an expert car waxer, she has an *extensive knowledge base*.

She is also *motivated* to wax cars. She enjoys the mindlessness of the task, and she enjoys the results that can be obtained in just a few hours. She is motivated because she knows that her effort pays off in the end. Thus motivation plays a key role in her becoming an expert car waxer. If she were not motivated by the task, she might not engage in it nearly as often as she does.

While waxing her car, she is also very aware of how the whole procedure is progressing. She looks critically at the way she performs the task and knows when something is going wrong. In this sense, she is *metacognitive*—she is able to monitor her performance and determine whether she should continue the task in the same manner, abandon the task, or use a more effective approach.

When she recognizes that something is not going well (e.g., she is applying the wax too thickly or it is about to rain), she is able to *analyze the task* to know how to make adjustments to her procedure. For example, if she applies the wax too thickly, she knows

why it is occurring, and she knows what to do to correct the problem. Thus, she also *possesses a variety of strategies* for accomplishing the desired goal. To apply the wax more thinly, she knows she needs to moisten the applicator a bit and spread the wax over a larger portion of the car. Through her metacognitive awareness of the problem, her ability to analyze the task, and her selection of an appropriate alternate strategy from her available repertoire, she is able to solve the dilemma and attain her goal.

These five characteristics—possessing an extensive knowledge base, being motivated to use strategies, being metacognitively aware, possessing an ability to analyze the task, and possessing a variety of strategies for attaining the desired goal—comprise the qualities of experts in nearly any domain, whether it is car waxing, sewing, reading, or writing (Meichenbaum, 1977). Michael Pressley and his colleagues identified similar characteristics in their good strategy user model (e.g., Pressley, 1986; Pressley, Borkowski, et al., 1989; Pressley, Symons, Snyder, & Cariglia-Bull, 1989; Pressley, Woloshyn, et al., 1995).

These characteristics were derived from a host of expert–novice research studies conducted in the 1980s (e.g., August, Flavell, & Clift, 1984; Davey, 1988; Gambrell, Wilson, & Gantt, 1981; Garner & Kraus, 1981; Garner & Reis, 1981; Recht & Leslie, 1988). In these studies researchers examined what expert readers did as they read and compared it with what novice readers did as they read. The underlying premise of these studies was that if we could understand what expert readers do and compare it with what novice readers do, that would help us understand what we might need to teach novice readers to help them become more like the expert readers. Figure 1.4 summarizes the findings from these studies. In general these studies found that novice readers (1) focused on decoding individual words, (2) could not adjust their reading rate, (3) were not aware of alternative strategies for enhancing comprehension and memory of text, and (4) were not adept at monitoring their own comprehension.

In contrast, Paris et al. (1991) noted in their synthesis of strategy research that expert readers have (1) rapid decoding skills, (2) large vocabularies, (3) phonemic awareness, (4) knowledge of text features, (5) knowledge of a variety of strategies to enhance comprehension and memory of text, and (6) the ability to monitor their comprehension. From an instructional standpoint, our goal must include providing instruction, modeling, and guided practice so that less proficient readers begin to understand how to read and process text strategically. In terms of strategies instruction this would mean teaching novice readers and struggling readers how to use a variety of strategies in different situations, teaching them about different features of text (including text structure), and teaching them how to monitor their comprehension.

Expert Readers	Novice Readers
• Have rapid decoding skills. • Have large vocabularies. • Know a variety of strategies to enhance comprehension and memory of text. • Know about text features and text structures. • Have good phonemic awareness.	• Focus on decoding individual words. • Cannot adjust their reading rate. • Are not aware of alternate strategies for enhancing comprehension and memory of text. • Are not adept at monitoring their own comprehension.

FIGURE 1.4. Differences between expert and novice readers.

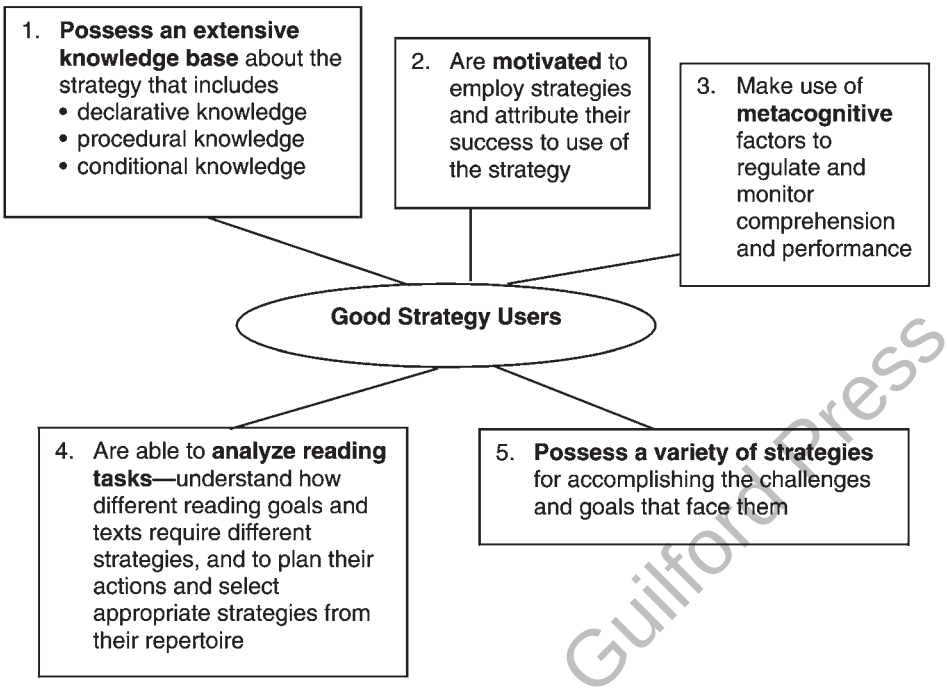

FIGURE 1.5. Good strategy user model (Pressley, 1986; Pressley, Symons, Snyder, & Cariglia-Bull, 1989).

The good strategy user model depicted in Figure 1.5 provides an overview of the five aspects that are most critical in becoming a good strategy user. Each aspect of the model is explained further as it relates to reading; however, it is important to recognize that although each component is discussed separately, the components do not work in isolation from one another. As Pressley, Woloshyn, et al. (1995) noted, each component continually interacts with the others to create a coherent process.

Possession of an Extensive Knowledge Base

One of the primary distinctions between experts and novices is the type and extent of knowledge they acquire as they become more proficient (Paris et al., 1983). Like experts, good strategy users possess a great deal of knowledge that they use to inform strategy selection and use. Cognitive and developmental psychologists have emphasized two types of knowledge: declarative and procedural. Paris et al. (1983), in their seminal work, added a third type: conditional.

Declarative Knowledge

Declarative knowledge is information about the structure of a task and the goal (Paris et al., 1983); it is sometimes referred to as "knowledge *that*." In the car-waxing example above, Janice had knowledge that some waxes provide a glossier shine but do not hold up well under various weather conditions. If her goal for the car is to have a high gloss

shine, then she will use one type of wax; if her goal is to have a durable coat of wax, then she will use a different type of wax. Declarative knowledge was also involved in the opening driving scenario. Knowing that a particular blocked route would take hours to clear helped you to self-select a strategy from the three alternatives. If you had not had that declarative knowledge, you may have made a different choice and wound up in traffic.

In reading, declarative knowledge includes information about how particular reading tasks are structured. For example, expert readers know *that* stories have a particular narrative structure *that* includes setting, characters, problems or goals, attempts to solve the problem or attain the goal, and a resolution. Expert readers also know *that* they read differently when studying for a test than when reading for pleasure.

Declarative knowledge also refers to one's beliefs about the task and one's abilities (Paris et al., 1983). In the car-waxing example, a relevant belief would be, "I believe that I am a good car waxer." For readers, these beliefs would reflect the specific reading task and their perceived ability to perform it. For example: "I don't like informational books" or "Informational books are hard for me to understand."

Declarative knowledge resides in long-term memory. Derry (1990) described it "as a large, tangled network" (p. 351) that is useful only if it can be recalled when needed. The result of activating declarative knowledge is simple recall. It is important to help learners organize this level of information and establish connections that enable them to access this reservoir of declarative knowledge. For those learners who do not possess an extensive amount of declarative knowledge about reading, it is important to help them make connections between new information and their prior knowledge. New ideas and knowledge are more likely to be remembered if they are associated with prior knowledge. The role of declarative knowledge in strategic processing is that it enables such knowledge about a given strategy to be accessed quickly.

Procedural Knowledge

Whereas declarative knowledge involves information about a task's structure, procedural knowledge involves knowing how (Paris et al., 1983) to do something—how to execute or perform a given task. In contrast to declarative knowledge, the result of procedural knowledge involves transforming information into action (Derry, 1990) rather than simple recall.

Using the car-waxing task, knowing how to wax a car by hand is an example of procedural knowledge. The step-by-step procedures involved in performing the task are part of this knowledge. For car waxing those steps might include the following: (1) Start with a clean car; (2) obtain relevant materials (appropriate car wax, an applicator, and a soft dry cloth); (3) moisten the applicator lightly; (4) dip the applicator into the wax; (5) spread the wax onto the surface of the car, using smooth, circular motions; (6) apply wax to the entire surface of the car in this manner; (7) wait for the wax to dry; and (8) using a soft, dry cloth, wipe off the residue from the car's surface.

Procedural knowledge in the context of reading includes the step-by-step procedures for how to make predictions about a story outcome or how to set a purpose for reading. Without procedural knowledge, readers are unable to execute a given strategy. How often have we asked students to summarize a given passage without having taught them *how* to summarize in a step-by-step fashion? How often have we asked students to make predictions about what will happen in stories without first teaching them prediction procedures?

For those students who struggle with learning to read, it is essential to teach procedural knowledge related to reading strategies.

Conditional Knowledge

Paris et al. (1983) have aptly noted that declarative and procedural knowledge are not sufficient to enable readers to process text strategically. The ability to understand when, where, and why to use a given strategy is also essential. They termed this type of understanding "conditional knowledge."

In the car-waxing example, it does Janice no good to have the declarative knowledge about different types of car wax or the procedural knowledge about how to wax a car by hand if she does not know when she should wax a car or why she should wax a car. Conditional knowledge explains the circumstances under which a strategy should be employed, and it provides a rationale for employing the strategy. Without knowing about the utility and value of a given procedure, an individual is not likely to expend the time and effort needed to execute a strategy. Waxing a car by hand is tediously hard work. Why should I do it? If I do not see value in the activity, then I am not going to perform it. When we know that at least two coats of wax a year protect the exterior paint and prevent body rust on this valuable investment, then maybe we would be convinced to wax our car. However, if we leased a car, do not care about body rust, or do not live in a climate where body rust is a problem, then this rationale may not convince us to expend the effort to wax the car.

An example of conditional knowledge in the context of reading is knowing *when* we should make predictions and *why* it is important to make predictions while reading. For example, because we learn new information when we read expository texts, it is hard to make predictions while reading them. Thus, prediction is not a strategy that is typically used when reading informational texts. However, if we are reading a narrative text, prediction is a very useful and effective strategy. Even if a child knows how to predict (i.e., has procedural knowledge), he will not expend the effort to employ the strategy if he does not know when to do it or why it is important.

Conditional knowledge plays a critical role in strategic processing. In fact, without knowledge of when and why to use a given strategy, it is most probable that a student will not employ the strategy on her own unless she is prompted or forced to do so. In this case, the student is not independently employing the strategy; she is doing so out of compliance, which means that it is highly unlikely that she will elect to use the strategy on her own.

In time these concepts about the nature of knowledge related to strategic processing have found their way into core reading programs (Dewitz et al., 2009; Pilonieta, 2010). However, Dewitz et al.'s (2009) examination of the five most widely used commercial core reading programs found that although these published programs provided instruction related to declarative knowledge of strategies, they were woefully inadequate at providing instruction related to the procedural and conditional knowledge associated with strategy use. These findings suggest that we cannot rely on (or implement) published programs with 100% fidelity, as doing such will not provide students with the knowledge necessary to become strategic readers. Instead, it is up to schools and teachers to be sure to provide explicit instruction that teaches readers about the declarative, procedural, *and* conditional knowledge associated with strategic processing that will enable them to become planful, self-regulated readers.

Motivation

Guthrie and Wigfield's (2000) engagement model of reading development identified four primary factors that lead to engaged reading. They noted that engaged readers are able to coordinate, or orchestrate, their strategy use and their conceptual knowledge within a social setting so that they fulfill their motivations. Motivation consists of a multifaceted set of goals and beliefs that guides a reader's behavior (Guthrie & Wigfield, 1999; 2000). The behaviors that one might notice that pertain to reading include how much one persists while reading, the amount of effort one expends throughout the reading process, or the choices one makes while reading. These behaviors are guided by motivation, which includes an "individual's personal goals, values, and beliefs with regard to the topics, processes, and outcomes of reading" (Guthrie & Wigfield, 2000, p. 405).

The multifaceted nature of motivation suggests that it is not a single, unitary construct. Instead motivation consists of several components. Guthrie and Wigfield (1999, 2000) noted that motivation involves (1) goals, (2) intrinsic motivation, (3) extrinsic motivation, (4) self-efficacy, and (5) social elements. From this perspective engaged readers are intrinsically motivated, use strategies, build conceptual knowledge, and interact socially to learn from text (Guthrie et al., 2004).

Related to strategy use, intrinsic motivation and self-efficacy are particularly important aspects of motivation. Strategy instruction, Guthrie and Wigfield (2000) contend, has the potential to empower readers and build intrinsic motivation because strategy use is intentional. Readers have to make a conscious effort to be strategic; therefore, this conscious effort leads to internal changes. When students are aware of the value of strategy use (i.e., conditional knowledge), see that strategy use has benefits, and are aware that their efforts to use strategies will pay off, they are less likely to feel helpless or incompetent while reading (Schunk & Rice, 1987).

In their study of third and fifth graders engaged in concept-oriented reading instruction (CORI), Guthrie et al. (1996) found that every student whose intrinsic motivation increased also experienced increased strategy use. In fact, they found that intrinsic motivation correlated with strategy use at .8 for fifth graders and .7 for third graders. More recently, Guthrie and his colleagues found that when an instructional framework (CORI), in which motivational practices were combined with cognitive strategies instruction, was compared to strategies instruction alone and to traditional reading instruction, third graders scored higher on measures of reading comprehension, strategy use, and motivation.

Thus, students must be intrinsically motivated to employ strategies, and their personal attributions must support this usage. Miller and Faircloth (2009) noted that it is also critical that students value strategy use and see its benefits. Using strategies is hard work and requires a great deal of effort; students will expend energy only on strategies that are meaningful, worthwhile, and rewarding to them (Paris et al., 1983). The key to this goal is ensuring that students see that strategic procedures enhance their performance (Pressley, Woloshyn, et al., 1995; Schunk & Rice, 1987), and that their efforts are rewarded (Pressley, Symons, et al., 1989).

In the car-waxing example, Janice's motivation for waxing her car was twofold: She enjoys the mindless physical activity (as well as being outside), and she likes the fact that when she is done, she can see the results immediately. Although waxing a car by hand is tedious, she sees a payoff in expending that effort, and she values the end result.

Attribution theory helps explain that individuals are motivated in this manner primarily because they have a desire to understand and explain the causes of success and

failure (Weiner, 1979, 1985, 1990). Four attributes are relevant to achievement-related behavior: ability (innate cognitive ability), effort (level of effort exerted), task difficulty (a general perspective on the intricacy of a particular task at a given moment), and luck (chance occurrences). Each of these four attributes has three characteristics: (1) stability, (2) locus of causality, and (3) controllability. Figure 1.6 depicts the four attributes and their characteristic features.

A *stable characteristic* is one that does not change. One's innate cognitive ability does not change, nor does the difficulty of a task at a particular moment. If the task were hard when first encountered, it would not suddenly change and become easier on its own. The task of hand-waxing a car remains the same task. Assessment of stable attributes leads to consistent expectations (Diener & Dweck, 1980). If a student attributes his success to his own ability or to the difficulty of the task, which are both stable attributes, then he will expect to succeed again with the same task (Weiner, 1985). Likewise, if a student attributes her failure on a given task to her ability, then she will expect to fail again. Effort and luck are unstable attributes; one can expend more or less effort on the same task, if one desires. Likewise luck is not an attribute that produces consistent results because it is based on chance. When outcomes such as success or failure in reading are ascribed to unstable attributes such as effort or luck, the certainty with which the same outcome can be expected in the future is diminished because with instability there is no guarantee that the same outcome will occur again (Weiner, 1985).

Locus of causality refers to where the source of the attribute lies. The source could be within you (i.e., internal), or it could be external. As Figure 1.6 shows, ability and effort are internal attributes. One's ability and the effort one exerts are within oneself. However, the difficulty of the task and luck are external attributes. One's affect (i.e., disposition or attitude) is related to locus of causality. Butkowsky and Willows (1980) found that students who attributed success to internal sources, such as ability or effort (e.g., "I'm smart" or "I tried hard"), experienced increased pride and self-esteem. When students attributed success to external factors (e.g., "I only did well because the test was easy" or "I was lucky"), lowered self-esteem occurred. If we fail at something and attribute this failure to an internal source such as ability (i.e., "I'm dumb"), we experience lower self-esteem. However, if we attribute the failure to an external source (i.e., "The test was too hard"), we preserve our sense of self-efficacy.

Controllability refers to whether or not the attribute is managed by us. The only attribute that we have conscious control over is effort. Only I can decide whether to exert

	Stability		Locus of Causality		Controllability	
Attribution	Stable	Unstable	Internal	External	Controllable	Uncontrollable
Ability	■		■			■
Effort		■	■		■	
Task Difficulty	■			■		■
Luck		■		■		■

FIGURE 1.6. Attributions for achievement-related behavior. Adapted from Weiner (1979). Copyright 1979 by the American Psychological Association. Adapted by permission.

more or less effort on a task. All other attributes are outside our range of control. We cannot control the innate ability with which we were born, we cannot control the difficulty of a task, and we cannot control luck. Unsuccessful students tend to attribute their failure to uncontrollable factors (Diener & Dweck, 1978, 1980), which means that they blame their failure on factors outside their control. Successful students tend to attribute their success to the controllable attribute—effort (Butkowsky & Willows, 1980).

How is this theory relevant for strategic readers? Expert readers attribute successful reading to deliberate, effortful execution of strategies. Strategic processing is contingent on self-selected and self-regulated behavior. The *individual* is key to successful strategy use. The only attribute that an individual has control over is effort. The internal locus of this attribute means that it has the potential to impact self-esteem. It also is an unstable attribute, meaning that how much effort is exerted on any given task varies.

Struggling readers often present motivational problems for classroom instructors. Johnston and Winograd (1985) suggested that many of these problems are related to the fact that "they are passive, helpless participants in what is fundamentally an interactive process—reading" (p. 279). Many struggling readers have low self-esteem and exhibit characteristics of "learned helplessness" (Seligman & Maier, 1967, p. 1). These characteristics are seeded in struggling readers when they begin trying to learn how to read, using the limited knowledge and strategies that they possess, and are unsuccessful. After repeated exposure to such failure, they give up and passively accept the fact that they cannot learn to read. They believe that inability, not lack of effort, is the cause of their failure—and they refuse to exert any more effort because they think it is futile to do so (Borkowski, Carr, Rellinger, & Pressley, 1990). Because they attribute their failure to an internal, stable attribute that is out of their control (i.e., ability), struggling readers tend to have low self-esteem (Hiebert, Winograd, & Danner, 1984). Simply put, they believe that they cannot learn to read because they are "dumb." Paris, Byrnes, and Paris (2009) noted that children's perceptions of their academic abilities decrease as they progress through school. They suggest that children have theories of ability and of effort that impact their perceptions of competence. Theories of ability would encompass questions such as "How good am I?" and theories of effort would encompass questions such as "How much should I try?" Because these theories of ability and effort impact perceptions of self-competence, they also influence motivation. When readers perceive themselves as competent, they will persist longer when faced with challenging literacy tasks, and they will use the strategies available to them to persevere until they have attained their goal. When readers perceive themselves as incompetent, their motivation is negatively affected, and they have difficulty maintaining focus and persisting toward the goal.

Given that effort is the only attribute that is both controllable and internal, it is the only attribute that can actually make a difference in reversing the debilitating effects of learned helplessness. Thus strategy instruction begins by focusing on teaching students that it is their *effort* that determines their success. If they put forth the effort to employ a strategy, it *will* improve their reading—on the condition that the sociocultural context of the classroom affords students the opportunity to experience firsthand how their efforts pay off in the dividend of success (Borkowski et al., 1990). Strategy instruction also must include explicit instruction about the utility of a given strategy (i.e., fostering conditional knowledge) so that students see its value, and students must be given feedback about their performance after using the strategy (Pressley, Woloshyn, et al., 1995; Van Ryzin, 2011).

Paris et al. (2009) noted that as readers develop theories of ability and effort, they also develop theories of agency and control. Bandura (1989, 2001, 2006) described

agency as the intentional influence one has over how one functions and over one's life circumstances. This means that "people take responsibility for their actions and ascribe success and failure to the goals they choose, the resources they mobilize, and the effort they expend" (Paris et al., 2009, p. 267). Self-efficacy is important in relation to agency because how you perceive yourself and your ability is going to influence the goals you choose, the expectations your have, and how much effort you put forth. Paris et al. (2009) note that four factors are important in promoting positive self-efficacy and agency: (1) success, (2) feedback, (3) observational learning, and (4) social persuasion. In terms of reading and strategic processing this view means that readers will become more agentic if they are able to engage in tasks and meet with success. This does not mean that all tasks should be easy. Rather, tasks should have the proper degree of challenge to enable readers to experience success and to know that they can continue to be successful with the same task under varying conditions. Feedback plays a role in agency in that when readers are provided with positive feedback, their self-efficacy is enhanced, which enables them to set goals that are slightly more challenging. Observation fosters agency when students are able to observe others successfully accomplish tasks. Such observation enhances self-efficacy because students see that the goal is attainable. Finally, social persuasion plays a role in that when teachers or peers provide encouragement and the recognition that achievement depends on ability and effort, they foster agentic beliefs and self-competence.

Finally, Paris et al. (2009) suggested that students not only develop theories of ability, effort, and agency, but also theories of schooling and academic tasks. They suggest that classroom activities and academic tasks must be structured in a way that encourages students to engage deeply rather than superficially (Paris et al., 2009). Academic tasks that elicit intrinsic motivation and engagement should be open-ended rather than closed (Turner, 1995). Turner (1995) noted that open-ended tasks do not have right or wrong answers, which is in contrast with closed-ended tasks such as worksheets, rote drill and practice, and literal recall. Instead, open-ended tasks encourage students to engage in interpretive, critical, analytic, and evaluative thinking and might include projects and research. Paris et al. (2009) noted that open-ended tasks enhance intrinsic motivation when they encourage students to (1) *construct* personal meaning, (2) *choose* how to approach and solve a task, (3) *collaborate* with others, and (4) derive *consequences* from the task that enhance self-efficacy.

In terms of classroom instruction that will foster motivated strategy use, these points suggest that instruction should include attribution (re)training; explicit instruction related to strategic processes; positive feedback; challenging (but attainable) goals and open-ended tasks; choice in the texts that are read, the academic tasks that are assigned, and the approaches used to accomplish tasks; and collaboration rather than competition (Van Ryzin, 2011). These contextual aspects of classroom instruction will serve to enhance motivated strategy use. Figure 1.7 lists guidelines for motivating students' use of strategies. Thus, being strategic involves much more than just having knowledge of strategies. For readers to actually use and implement strategic behaviors, their knowledge of strategies must be coupled with (1) theories of ability and effort that lead to perceptions of self-competence, (2) theories of agency that enable them to take control of their own reading process and intentionally engage in strategic behaviors that lead to goal attainment, and (3) theories of schooling and tasks that suggest to them that it will be well worth their time and effort to engage in a given academic task for the intrinsic benefit it brings (Paris et al., 2009).

1. Teach strategies that provide appropriate challenges (not too hard, yet not too easy).
2. Strategies must be worth learning. Students must value the strategy and see its importance.
3. Students need to experience success.
4. Steady progress must be reinforced.
5. Goals should be made clear.
6. Specific, detailed constructive feedback should be given.
7. Students should be taught to self-reinforce for achieving success.

FIGURE 1.7. Motivating students' use of strategies. Based on Borkowski, Carr, Rellinger, and Pressley (1990)..

Metacognition

Metacognition, or cognition about cognition, is the key to strategic processing because it enables us to monitor our cognition and the progress we make toward achieving our goal. Flavell's (1979) model of cognitive monitoring suggested that the ability to monitor cognition occurs when four components interact with one another: (1) metacognitive knowledge, (2) metacognitive experience, (3) goals, and (4) activation of strategies. *Metacognitive knowledge* refers to our knowledge or beliefs about ourselves and others as cognitive processors, knowledge about the task and how it should be managed, and knowledge about which strategies would be effective in helping us attain our goals. *Metacognitive experiences* refer to any cognitive or affective experiences we have in relation to our thinking. For example, the feeling that you do not understand something you read or that someone said is a metacognitive experience. These experiences can help us set new goals, revise old goals, or abandon old goals. As well, these metacognitive experiences can activate strategies that help us attain either cognitive or metacognitive goals. Flavell (1979) noted that "cognitive strategies are invoked to *make* cognitive progress, metacognitive strategies to *monitor* it" (p. 909). Together these four components help readers identify which strategies to use under which circumstances to attain goals (Fox, 2009), and they help readers *monitor* their progress toward their goals and *monitor* their use of strategies.

Dinsmore, Alexander, and Loughlin (2008) noted that historically it was Baker and Brown's (1984) review of literature on metacognition that expanded Flavell's (1979) notions of it to include self-regulatory processes. These self-regulatory processes involve the control we have over our learning and thinking (Baker & Brown, 1984). Such self-regulatory control includes the ability to plan, monitor effectiveness, test, revise, and evaluate (Baker & Beall, 2009; Baker & Brown, 1984; Dinsmore et al., 2008). These processes are critical to strategic processing and to comprehension.

In the car-waxing example, Janice's metacognitive experiences enabled her to ascertain how the job was proceeding. When she noticed that she was applying the wax too thickly, she was making an evaluation or judgment about her performance on a metacognitive level. This type of awareness may be very brief, involving only that instant recognition that things are, or are not, going well. In response to that metacognitive awareness, she began to think and act strategically about what to do to resolve the problem. Hearing about the traffic accident was a moment of metacognitive awareness that prompted a

consideration of various strategic actions. The metacognitive moment is an "aha" experience (Garner, 1987, p. 19), or, as Anderson (1980) described it, it is a "clunk" (p. 490) that vaults us into strategic processing in which we begin to enact cognitive strategies to resolve a problem. Without that experience we would muddle along, not realizing that a problem had even occurred.

Unfortunately, this lack of metacognition is precisely the problem that younger and less proficient readers have. Gersten, Fuchs, Williams, and Baker's (2001) review of research noted that an inability to use strategies and to be metacognitive was a leading reason that students with learning disabilities had comprehension difficulties. In particular, research has shown that younger and less proficient readers are less able to monitor and regulate their performance (Baker & Beall, 2009; Baker & Brown, 1984; Garner, 1980; Garner & Reis, 1981; Markman, 1977; Myers & Paris, 1978; Paris & Myers, 1981) than are older and more proficient readers (Baker, 1984; Baker & Anderson, 1982; Winograd & Johnston, 1982). While reading, these students would not recognize when something did not make sense or when the text was confusing. They would continue reading words, turning pages, completely unaware that their comprehension was obstructed. Therefore, fix-up strategies such as rereading, reading ahead, or talking about the materials with someone would not be used. After they finished "reading," their comprehension, recall, and memory of text was seriously impaired by their inability to monitor or detect a situation in which comprehension might be difficult. Despite rather overwhelming research evidence over several decades, incorporating instruction that is focused on facilitating metacognitive processes in routine classroom instruction has been slow, and Baker and Beall (2009) caution that instruction focused on metacognition should not become an end of itself. Instead, the goal should be to transform instruction so that the metacognitive processes that teachers and knowledgeable others model and demonstrate gradually become internalized by readers, leading to self-regulation (Baker & Beall, 2009).

Ability to Analyze the Task

Good strategy users are aware of the processes involved in successfully performing a given task or strategy (Pressley, Woloshyn, et al., 1995). Such awareness goes beyond the procedural knowledge of how to perform a strategy, and it is inherently linked to metacognition in that it involves being able to recognize, in the midst of performing a task, what to do next. If something goes wrong, a successful strategy user immediately knows how to rectify the problem and redirect efforts efficiently to attain the goal. The ultimate goal of task analysis is to assess the situation and flexibly make adjustments based on the parameters of the task (Pressley, Woloshyn, et al., 1995).

In the driving event, the metacognitive awareness about the traffic accident led to an analysis of the task involving a consideration of the conditions in relation to the goal of arriving home. In reading, specific strategies (e.g., summarizing, comprehension monitoring) have been analyzed to determine what steps are necessary to employ the strategies successfully (Garner, 1987). These task analyses are presented in Chapters 5 and 6.

Possession of a Variety of Strategies

Good strategy users possess a large repertoire of strategies (see Figure 1.8) (Pressley & Afflerbach, 1995; Pressley, Symons, et al., 1989). This repertoire can be likened to a "cognitive toolbox." When a reader has a metacognitive realization that something has

gone wrong, she can reach into her cognitive toolbox to select a strategy or tool that will help resolve the difficulty. The proficient reader possesses strategies for decoding, comprehending, interpreting, and studying text. Although strategies for interpreting and studying text are essential to proficient reading, this book deals only with strategies for decoding and comprehending text. Figure 1.8 depicts the range of cognitive strategies available to readers for decoding and comprehending text. Successful readers integrate these specific strategies into higher-order sequences to accomplish the more complex goal of reading (Pressley & Afflerbach, 1995; Pressley, Symons, et al., 1989; Shanahan et al., 2010). Again, these strategies are *not* used in isolation. A good reader may begin by looking at the title and pictures for clues about the text, which trigger initial predictions, in turn, leading to a purpose for reading. As the reader begins to process the text, he monitors his comprehension and realizes that one of his predictions was accurate. He reads on and makes another prediction about what will happen next to the character. Thus, the reading process involves a multitude of strategic sequences enacted differently by individual readers. Those who possess a variety of strategies approach this complex cognitive task with an array of tools that prepares them for any difficulties they may encounter.

If an individual has a limited number of strategies available, she will struggle to make do with what she has. If her goal is to drive a nail into a wall, for example, and her toolbox contains only a screwdriver, she will employ it in a less than efficient effort to accomplish the task. It is not the best or most efficient tool, but it is the only one she has until she can acquire new, more effective tools. Comparably, in reading, a reader recognizing that the text does not make sense can stop and employ a strategy to repair her comprehension. If the only tool she possesses is to go back and reread, then she uses

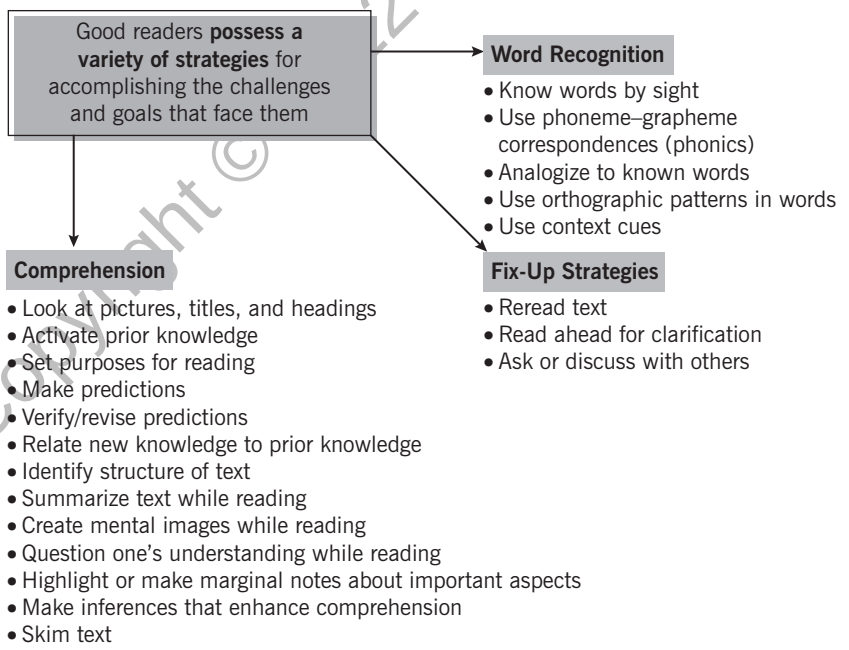

FIGURE 1.8. Good strategy users possess a variety of strategies.

that strategy. If the comprehension failure occurred in the beginning of the text, for example, then this strategy will not work very well. Thus having a wide range of strategies available in one's cognitive toolbox is essential for enhancing success. Possessing the conditional knowledge associated with each strategy is an integral part of the cognitive toolbox, for it equips strategy users with the ability to determine which strategies are best suited to various textual conditions.

Interventions that teach students how to use a set of strategies in a flexible manner as they read are much more effective than teaching students to use individual strategies one at a time. Examples of interventions that not only teach students how to flexibly use a cohesive set of strategies, but also to develop a metacognitive awareness of the task and of self that fosters self-initiated and self-regulated strategy use, include the following: reciprocal teaching (Palincsar & A. Brown, 1984), informed strategies for learning (Paris, Cross, & Lipson, 1984; Paris & Jacobs, 1984; Paris & Oka, 1986a), transactional strategies instruction (TSI; Anderson, 1992; Brown, Pressley, Van Meter, & Schuder, 1996; Pressley, El-Dinary, et al., 1992), CORI (Guthrie et al., 1996), and collaborative strategic reasoning (CSR; Klingner, Vaughn, & Schumm, 1998). Research evidence has been unequivocally clear that when we teach students of various ages and abilities to use multiple strategies, reading comprehension is enhanced not only in terms of short-term comprehension of a single text, but also in terms of long-term transfer to other contexts (Almasi, Palmer, Madden, & Hart, 2011; Brown et al., 1996; Edmonds et al., 2009; Gersten et al., 2001; Van Keer, 2004; Westra & Moore, 1995). Recent research has also indicated that teaching strategies one at a time was not as effective as teaching them as a set, as in TSI (Reutzel, Smith, & Fawson, 2005).

The toolbox metaphor is useful in helping younger and less proficient readers understand and visualize the complex, abstract process of using strategies. However, the caution in using the metaphor is that teachers will become focused on teaching *the strategies* rather than teaching students to *become strategic*. Almasi and Hart (2011) argued instead that instruction should aim to be more transformational by focusing on the student rather than the content (i.e., the strategies being taught). They noted that in viewing strategies as tools, teachers and students might inadvertently gain the impression that these cognitive and metacognitive strategies are *outside* of themselves, when in fact these strategic behaviors and actions are *inside* of them. The reader is the tool. The tools/strategic behaviors are contained within; the reader actually embodies the tools. That is, the reader becomes the tools/strategies and the tools/strategies become part of the reader. It is a reciprocal and transforming process. Teachers from a transformational perspective do not tell readers when to use a strategy. Instead they focus on helping students become independent, self-regulated readers who are able to recognize when they need to become strategic, are capable of analyzing the task and the conditions to know which strategies might be the most effective for them, and are motivated to put forth the effort needed to employ the strategies.

In sum, the five characteristics of good strategy users are essential for proficient reading. Successful readers must (1) possess an extensive knowledge base about strategies, (2) be motivated to employ strategies and be agentic about their use, (3) be metacognitive, (4) analyze the reading task, and (5) possess a variety of strategies that can be used flexibly. These characteristics work in unison as a coherent whole, rather than in isolation, to produce efficient strategy use in only a matter of seconds. The challenge, however, is teaching struggling readers the value of strategy use. Once students experience the value of using strategies, they will be more inclined to use them.

Why Students Do Not Use Strategies

When thinking about why students may not use strategies, it is helpful to do the inverse of what we did when we thought about strategic, or expert, readers. Think about something that you do *not* do well. Think about why you are not good at that particular task and how you feel when you are doing it. Although Janice is excellent at waxing cars, she is not good at many things—bowling, knitting, and dancing are but a few. When she even thinks about doing these activities, she becomes dismayed. She does not like doing these activities, she does not understand how to do them well, and she really does not care if she ever knows how to do them to any degree of proficiency. Although she knows many who are good at each of these activities, and she admires their talents greatly, ultimately she feels she has no use for those activities. She feels unsuccessful at them and when she engages in them, she feels foolish and inept. This is the same way that struggling readers feel about reading. They may know that it is an important skill to learn, but they really do not like doing it, they are not good at it, and they feel foolish and inept. They experience these feelings every day, sometimes for hours each day, while they are in school. Sometimes we even ask them to perform this task that they are so inept at, and that they dislike so much, in public, in front of their peers. Imagine if you had to perform the task or activity that you are terrible at in public and in front of your colleagues! It is a dreadful thought. Yet, poor readers face this dreaded possibility every day, sometimes for hours each day, over the course of many years.

Garner's (1990) review of strategy research analyzed the reasons why many readers do not use strategies. Five reasons, which are nearly the inverse of the good strategy user model, emerged from her synthesis: Poor readers possess (1) a meager knowledge base, (2) personal attributes that do not support strategy use, (3) poor cognitive monitoring (in our terms, poor use of metacognition), (4) primitive routines, and (5) minimal ability to transfer knowledge to new settings. In a more recent review of research Gersten et al. (2001) identified similar elements that led to comprehension difficulties for learning disabled students.

Meager Knowledge Base

Nonstrategic readers do not have a sufficient knowledge base about the reading process to support strategy use. They may lack declarative knowledge about the structure of the task, procedural knowledge about how to perform the strategy, conditional knowledge about when and why they should use a given strategy, or they may lack some combination of all three. In the example above, Janice noted that she is not good at knitting. In fact, she really knows very little about it. She knows that you need knitting needles and yarn (declarative knowledge), but she doesn't know what kind of needles. Are they all the same? She doesn't think so, but she is not sure. She has no idea at all about *how* to knit (procedural knowledge). She has heard the phrase "knit one, purl two," but she has no idea what it means or how it is pertinent. In fact, when the first edition of this book was written, Janice had so little knowledge about knitting that she didn't know how to spell *purl* correctly and it had to be corrected by the editor. She certainly does not have any conditional knowledge of when she should enact a strategy because she does not even possess a single knitting strategy. Thus, she brings no knowledge about knitting to the task.

Struggling readers are no different. They have a limited knowledge base about many reading strategies (Baker & Brown, 1984; Garner, 1987, 1990). For example, struggling readers may have some declarative knowledge about a given strategy, such as prediction. They may know *that* a prediction is a guess about what might happen in the story, but they may not know *that* good readers continually revise and update their predictions throughout their reading of the text. Thus the knowledge base is limited. They may have a general idea about *how* to predict (i.e., procedural knowledge), but they may not know *how* to make a textually relevant prediction. Their predictions may be completely "off the wall" or "out of the blue." Likewise, they may not know the conditions under which they should use prediction as a strategy. Thus, one of our instructional goals must be to provide explanations and experiences that *instantiate* (concretize) readers' knowledge base about strategies.

Personal Attributions Do Not Support Strategy Use

Strategy use is time-consuming and requires persistence. Many readers do not believe that the time and effort it takes to employ strategies will pay off; therefore, they fail to use them (Garner, 1990). Readers with high self-esteem tend to attribute their successful and unsuccessful reading experiences to their level of effort (Borkowski et al., 1990; Butkowsky & Willows, 1980), whereas readers with lower self-esteem are not as likely to initiate or persist at strategy use because they attribute their difficulties to lack of ability (Garner, 1990). These readers often have experienced years of frustration in school and rather than be embarrassed one more time, they give up. In many cases, their schools and their teachers have failed them. Rather than blaming these external sources for their failures, however, these readers tend to attribute their failures to internal, stable factors such as ability, and their successes to external factors such as luck or task difficulty (Hiebert et al., 1984).

Garner (1990) also noted that many of these students appear lazy or unmotivated, often engaging in defensive behaviors that emerge to guard the feelings of ineptitude that result from repeated exposure to failure. They often state that they "can't do it," refuse to engage in strategic actions, or become dependent on support from others to scaffold their every move. These readers lack persistence and confidence in much the same way that Janice described her own experiences with knitting, bowling, and dancing. When you are not good at something, you usually do not want to engage in it—even if someone is trying to teach you how to perform it better.

Poor Cognitive Monitoring/Metacognition

Many readers are unable to evaluate and monitor their reading process to know when something does not make sense. Instead, because they do not recognize that anything is wrong, they continue reading without stopping to employ a repair strategy. In particular, younger and less proficient readers have difficulty monitoring their reading, yet rarely do we provide instruction related to metacognition or cognitive monitoring to help them (Garner, 1990).

Sometimes the conditions of the reading task do not permit close monitoring either. Garner (1990) has noted that when memory resources are strained, it is difficult to monitor. That is, if the text is too difficult to read, or if there are interruptions, the additional

load placed on memory to overcome these difficulties makes it impossible to monitor cognitive processing as well. Likewise, if readers do not see the task as important, it is unlikely that they will attend to it enough to monitor their progress with it. It is similar to my experiences with knitting or bowling: If I am spending so much energy and effort just to get the procedures down, I may not have enough cognitive resources left over to monitor my progress. I also may not care enough about my performance to expend the extra energy to monitor how well I am doing.

Routines Used Are Primitive

Garner (1990) has also noted that readers who do not use strategies often do not do so because they use a primitive routine. In effect, because these readers do not have a large repertoire of available strategies to use, or because they do not have the conditional knowledge of when and why they should use a given strategy, they rely on the strategy they know. As an example, Janice shares her own experiences when she first moved to Buffalo, New York. At first she knew only three streets: Main Street, Youngs Road, and Maple Road. Because they were the only three streets with which she was familiar, she planned all of her travels using them—even if it took longer. To drive from her home to downtown Buffalo, there are several major highways that she could have used; however, she always took Main Street (with all of its traffic lights) to travel the 15 miles downtown. Certainly this was not the easiest or most efficient route downtown, as she came to learn, but she did not care. It was the only route she knew. She felt safe using her few, carefully chosen routes. When she moved to Lexington, Kentucky, she adopted a similar strategy, relying exclusively on New Circle Road and Nicholasville Road (the busiest routes in Lexington) to navigate the new town. As a driver in a new environment, Janice clearly is not a risk taker and relies on familiar roads (that are not as efficient) rather than expending the effort to learn new, more efficient routes. She reacts in this way, in part, because she is uncomfortable with the unknown and is fearful that she may get lost.

Younger and less proficient readers often react similarly. They use and rely on the tools/strategies that are available to them even if they are an inappropriate or less effective means of accomplishing the task.

Transfer of Strategies Is Minimal

Teaching students how to transfer strategy use to new situations is one of the most difficult aspects of strategy instruction. Even if we provide the best and most thorough instruction related to strategy use, there is no guarantee that readers will use a given strategy independently when the time comes. Readers tend to learn and use strategies in the contexts in which they were originally taught. That is, they become somewhat "context bound" (Perkins & Salomon, 1989) and have a difficult time transferring this knowledge to other contexts (Garner, 1990). During reading instruction, the context includes the instructional setting (e.g., type of text, type of task, level of scaffolded support) in which the strategies were taught. When the student reads a different type of genre, engages in a different task, or engages in an activity that has a different level of instructional support (i.e., whole-class lecture, one-on-one tutoring, paired activity, group activity), the context is different, which makes it difficult to generalize the use of a strategy learned in the prior context. Chapter 5 discusses ways to facilitate transfer of strategy use to new contexts.

Summary

Cognitive strategies are plans that are self-selected, evaluated, and regulated by an individual to attain a goal. Using strategies is important because they enhance learning and permit students to take control of their own learning. Good strategy users have an extensive knowledge base that includes declarative, procedural, and conditional knowledge related to strategic processes. They also recognize the value of using strategies and are motivated to use them. Good strategy users are metacognitively aware of how the process is going, are able to analyze the task to see what adjustments may be needed, and possess a variety of strategies for accomplishing the desired goal. Those who do not use strategies do not possess an extensive knowledge base about strategic processing. Furthermore, their personal attributions do not support strategy use, and they have poor cognitive monitoring, use primitive routines to accomplish the task, and are unable to use strategies in multiple contexts.

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