CHAPTER 1

Why Use Strategy Instruction?

Students with learning disabilities (LD) constitute by far the largest group of students with special needs. According to the U.S. Department of Education, in 2010 there were more than 2,400,000 students from ages 6 to 21 served in federally supported programs for LD. Students with LD constitute 44.6% of the special education population and 4% of the total school enrollment, according to most recent figures (U.S. Department of Education, 2008). Although LD is by far the largest category of disability, the number of new students identified as having LD has shown a slight decrease over the last 4 years (U.S. Department of Education, 2010). Whether this is due to changes in the actual number of students with LD or to changes in identification procedures is still not clear.

A learning disability affects nearly every aspect of a child's life and is a lifelong challenge (Lerner, 2000). Students with LD are often caught in a vicious spiral of school failure. Their learning difficulties lead to a slower development of academic skills and abilities, which in turn impedes new learning (Stanovich, 1986). As a result of the repeated cycle of failure, these students fall further and further behind. According to the U.S. Department of Education (2008), students with LD are at greatly increased risk for dropping out: Nearly 40% of students with LD fail to graduate from high school with a standard diploma. The academic problems also result in a lower engagement rate in postsecondary schooling, employment, or both, compared to typically achieving students (Murray, Goldstein, & Edgar, 1997). Thus, the need to address the academic achievement of students with LD is critical in order to improve their academic outcomes.

The purpose of this chapter is to provide background information on LD, discuss those characteristics of students with LD that affect instruction in general and strategy instruction in particular, and provide a rationale for the use of strategy instruction. Readers who are interested in more in-depth information on these topics should refer to Swanson, Harris, and Graham (2003). In this chapter, we first present definitions of

LD and briefly discuss the history of this category. Next, we describe some important characteristics of students with LD and how our conceptualization of LD has changed over time. Finally we make a case for the use of strategy instruction with students with LD. Note that the use of strategy instruction is *not* limited to students with LD. Research clearly indicates that strategy instruction is effective for the great majority of students who struggle in academic areas.

WHAT IS A LEARNING DISABILITY?

LD has been recognized as a category of disability under federal law since 1975. The current legal definition of LD is written into the Individuals with Disabilities Education Act (IDEA); however, as Table 1.1 shows, other organizations have proposed their own definitions of LD that differ substantially, and exactly how to define LD has been, and continues to be, a controversial area. This controversy is due, in part, to the highly heterogeneous nature of the students who are defined as LD. Students with LD manifest a number of different problems in academic, behavioral, and social–emotional areas. Moreover, students with LD may exhibit vastly different profiles both within and across these areas. For example, some students may have serious problem with reading but will excel at mathematics. Others may have difficulties in mathematics, but not in reading. Table 1.2 shows examples of the subtypes of LD currently identified by researchers. Note that the problems of students with LD are not limited to academics. Some students will have serious problems with self-esteem or depression, whereas others have little or no problem in these areas but may exhibit serious behavior problems. Attention-deficit/hyperactivity disorder (ADHD) also occurs in around 25% of students with LD (Reid & Johnson, 2012). Another factor that contributes to confusion in the area of LD is that the field cuts across a number of professional disciplines, such as education, psychology, medicine, and sociology. Each of these disciplines brings its own perspective to LD, and like the proverbial blind man and the elephant, each focuses on a different aspect of LD. As a result, there are differences across professional groups on the terminology that should be used to describe LD, and on which aspects of LD should and should not be included in the definition.

Although there is a lack of consensus on how to define LD, there is a practical consensus on how students with LD should be identified. Despite the fact that all of the definitions of LD contain references to its causes (e.g., disorders in basic psychological processes, neurological origins, central nervous system dysfunction) and that difficulties in academic areas are often described in medical language (e.g., *dyslexia, dyscalculia, dysgraphia*), these factors rarely, if ever, play a role in diagnosis. In practice, LD is a category of underachievement, and students with LD are identified by their chronic and severe academic difficulties. Until 2004, discrepancy formulas were commonly used to determine if a child should be labeled as LD. Mercer (1997) noted that over 90% of states include a discrepancy component in the identification process. These discrepancy formulas assessed the difference between ability, as determined by the results of intelligence tests, and academic achievement, as assessed by standardized tests. If the difference between the child's presumed ability and actual achievement was

TABLE 1.1. Definitions of Learning Disabilities

Individuals with Disabilities Education Act (1977)

The term "specific learning disability" means those children who have a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include a learning problem that is primarily the result of visual, hearing, or motor handicaps; of mental retardation; of emotional disturbance; or of environmental, cultural, or economic disadvantage.

Association for Children with Learning Disabilities (1986)

Specific learning disabilities is a chronic condition of presumed neurological origin that selectively interferes with the development, integrations, and/or demonstration of verbal and/or nonverbal abilities. Specific Learning Disabilities exists as a distinct handicapping condition and varies in its manifestations and in degree of severity. Throughout life, the condition can affect self-esteem, education, vocation, socialization, and/or daily living activities.

Interagency Committee on Learning Disabilities (1987)

Learning disabilities is a generic term that refers to a heterogeneous groups of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, mathematical abilities, or social skills. These disorders are intrinsic to the individual and presumed to be due to central nervous system dysfunction. Even though a learning disability may occur concomitantly with other handicapping conditions (e.g., cultural differences, insufficient or inappropriate instruction, psychogenic factors), and especially attention-deficit disorder, all of which may cause learning problems, a learning disability is not the direct result of those conditions or influences.

National Joint Council on Learning Disabilities (1997)

Learning disabilities is a general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities. These disorders are intrinsic to the individual, are presumed to be due to central nervous system dysfunction, and may occur across the life span. Problems in self-regulatory behaviors, social perceptions, and social interactions may exist with learning disabilities but do not by themselves constitute a learning disability. Although a learning disability may occur concomitantly with other disabilities (e.g., sensory impairment, mental retardation, or serious emotional disturbance) or with extrinsic influences (such as cultural differences or insufficient/inappropriate instruction), it would not be a result of those conditions or influences.

large enough, the child could be identified as having a learning disability. Discrepancy formulas, though commonly used, came under scrutiny due to concerns pertaining to their validity and also because the use of discrepancy formulas required schools to wait until a student exhibited serious academic deficiencies before they could intervene (Fuchs, Fuchs, & Compton, 2004).

Because of concerns over the validity of discrepancy approaches and the "wait-to-fail" approach inherent in their use, the latest version of IDEA (2004) made a dramatic change in the approach that schools are allowed to use in identifying students with

TABLE 1.2. Subtypes of Learning Disability

Types of LD	Description
Reading—word level	• Problems with accurate and fluent decoding • Related to phonological processing, rapid naming abilities, and verbal short-term memory deficits
Reading—comprehension	• Problems with language comprehension, inferences, and abstraction • May have deficits in vocabulary and syntax • Problems with working memory • Phonological skills, short-term memory not affected • Problems parallel those of listening comprehension
Reading—fluency	• Excessively slow rate of reading • No decoding problems • Comprehension problems due to difficulty with rapidly processing information
Math	• Difficulty with learning, representing, and retrieving math facts • Difficulties in learning and using problem-solving strategies required for calculations • Normal reading/spelling
Reading and math	• Deficits in both reading and math • Memory-based deficit • Potentially related to working memory and long-term memory access
Written expression	• Problems with text generation • Problems with spelling • Poor handwriting

Note. Data from Fletcher et al. (2002); Fletcher, Morris, and Lyon (2003); and Lyon, Fletcher, and Barnes (2003).

LD. Schools are no longer required to determine whether any discrepancy exists. The approach now used in schools, response to intervention (RTI), is based on a principle of early intervention. In this approach, all students in a classroom receive effective instruction. If a student exhibits problems (e.g., fails to progress academically at an acceptable rate), the student is given additional instruction in an individual or small-group setting. For a student to be eligible for special education services related to LD requires only that the school document that a student continues to demonstrate significant academic underachievement when provided with instruction (based on scientifically supported principles) for a reasonable period of time.

CAUSES OF LEARNING DISABILITIES

The search for causes of LD has been the focus of research for more than 50 years. A number of possible causes have been put forward over the years with varying degrees of support. Table 1.3 presents some hypothesized causes of LD. No one has yet

presented conclusive or compelling evidence to support any particular cause of LD, though researchers continue to make progress. In part this lack of clear etiology is due to the problems inherent in studying LD. Given the highly heterogeneous nature of LD, the differing theoretical orientations of researchers, and the problems with defining and accurately identifying a child as having an LD, this should not be too surprising. There are some clear trends in how LD has been approached that have direct implications for educators involved with instructional decision making for students with LD.

Medical Perspectives

Historically, LD have been viewed as brain-based disorders. That is, the learning problems evidenced by students were thought to be due to some specific neurologically based deficit or disorder. For example, James Hinshelwood (1917) coined the term *word blindness* to describe a child who had an inexplicable inability to learn to read, despite apparently normal intelligence and normal functioning in other areas. Hinshelwood speculated that the child's problem was due to a defect in the angular gyrus. Another early researcher, Samuel Orton (1937), noticed that many students who experienced difficulty in reading also tended to reverse letters such as *b* and *d*, or *p* and *q*. Orton termed this phenomenon *strephosymbolia* (twisted symbols) and attributed it to the failure of some individuals to develop "cerebral dominance" (i.e., neither of the brain's hemispheres was dominant). He hypothesized that reversals were due to mirror images of words or letters stored in the nondominant brain hemisphere.

TABLE 1.3. Hypothesized Causes of Learning Disabilities

Cause	Example
Central nervous system abnormality	Abnormal brain hemispheric symmetry; nerve cell anomalies in areas of the brain involved in language
Central nervous system damage	*Prenatal*: maternal drug use, smoking, fetal alcohol syndrome, fetal alcohol effects
	Perinatal: prematurity, anoxia, complications during labor, injury during delivery
	Postnatal: brain injury due to stroke, high fever, meningitis, encephalitis, or head trauma
Genetic	Evidence suggests that reading disabilities may have a strong genetic component. Conditions caused by chromosomal abnormalities, such as Klinefelter syndrome, Turner syndrome, or fragile X syndrome, can result in learning difficulties.
Environmental	Exposure to environmental toxins such as lead or other heavy metals
Biochemical abnormalities	Imbalances in neurotransmitters (e.g., dopamine, serotonin, acetylcholine)

This work was continued by researchers such as Kirk Goldstein (1936) and Alfred Strauss (Strauss & Lehtinen, 1947). Goldstein worked with soldiers who had suffered brain injuries during World War I. He noted that these soldiers commonly exhibited perceptual problems, impulsivity, distractibility, and hyperactivity. Strauss noted that students with mental retardation exhibited many of the same characteristics and theorized that the problems were due to brain injury. As a result, terms such as *brain-injured child* and *minimal brain dysfunction* were used to refer to students we would today call *learning disabled*. Strauss hypothesized that perhaps some extremely subtle brain damage was the root cause of a child's failure to learn. These labels were, understandably, unpopular with parents, and their relevance was also questioned. The medical influence on the field of LD is still strong. For example, use of medical terminology such as *dyslexia* or *dyscalculia* to refer to problems in reading and math is common. Current research on the brain and LD now uses extremely sophisticated tools and is beginning to shed further light on the relation between the brain and LD (e.g., Shaywitz, 2003).

Learning Disabilities as an Academic Problem

In 1963, a watershed event in the history of LD occurred at a meeting of concerned parents in Chicago (Mercer, 1997). The parents met to air their displeasure with medical practitioners who described their children as *brain-injured* or as having *minimal brain dysfunction*. Samuel Kirk, a psychologist with years of experience working with students with academic problems, coined the term *learning disabilities* to describe those students who had difficulty in learning to read. This relabeling shifted the prevailing perspective on learning problems. Rather than being attributed to organic damage to the brain, these problems were seen as related to underlying cognitive processes. That is, the students were neurologically intact but had difficulties with psychological processes (i.e., perceptual problems, as evidenced by difficulties with visual and auditory discrimination) that prevented them from receiving visual and/or auditory stimuli correctly and resulted in difficulty learning. This perceptual–motor approach shifted the focus from the medical aspects of LD to the academic, resulting in the creation of assessment instruments designed to measure underlying deficits, and of intervention programs designed to remediate them. The idea was that, if the hypothesized underlying deficit in perceptual processing were corrected, then the child would be able to progress academically in a normal fashion. Numerous programs were designed and implemented. Students learned to walk balance beams to improve motor skills, and to trace shapes to improve perceptual skills. Unfortunately, the training programs designed to remediate process deficits were found to be ineffective, and the assessment instruments were not reliable (Hammill & Larsen, 1974). However, the perspective on LD as a problem rooted at least in part in *instruction* remained and served to change LD practice.

Behavioral and Cognitive Approaches

During the 1960s, 1970s, and 1980s, new, influential perspectives on LD began to emerge. The first of these was behaviorism. This approach, developed by B. F. Skinner, was

based on the theory that a functional relation exists between behavior (e.g., reading) and the environment. Behaviorists stressed direct observation and ongoing collection of objective (i.e., verifiable) information. Learning was viewed as a hierarchical process in which a child must master skills in a prescribed order. In this approach academic tasks were broken down into their component parts, and each part was taught in sequence. The application to LD lay in the notion that academic problems would be best addressed by effecting changes in the instructional environment. From the behaviorist perspective, a highly structured instructional environment that directly addressed the problem area was necessary for academic progress. Thus, if a child had reading problems, the solution was to directly teach the skills needed to read, by using appropriately sequenced, highly structured instruction. Several extremely effective instructional approaches, such as DISTAR (Engelman & Bruner, 1974) and Precision Teaching (Lindsley, 1964), were developed based on behavioral approaches.

In the 1970s, cognitive approaches to teaching and learning began to influence the LD field. The cognitive perspective focuses on the role of the individual in the learning process (Mercer, 1997). From this perspective, the key is the relation between demands of the learning environment (e.g., the task, instructional materials) and how the learner processes information. Learning problems may result from deficits in cognitive processes such as memory, failure to process information efficiently (e.g., failure to use an appropriate or effective strategy), or a combination of both. Metacognition (knowledge of one's own cognitive processes) also became important. During the 1980s, cognitive approaches became very influential, and a great deal of basic research was done to identify the cognitive characteristic of students with LD. Memory researchers developed new models for addressing how cognitive processes work. Perhaps the most important of these was the information-processing model, which envisioned cognitive processing as analogous to a computer with input, storage, and processing components. The information-processing model was extremely influential because it focused attention on the processes involved in memory and learning. Curriculum materials such as the University of Kansas learning strategies approach, which utilized cognitive approaches, were developed and implemented effectively. The work done on behavioral and cognitive approaches resulted in progress in our understanding of the nature of the problems encountered by students with LD and in the development of effective teaching techniques. The field of LD is still building on and refining the advances that occurred during this period.

CHARACTERISTICS OF STUDENTS WITH LEARNING DISABILITIES

It is important for educators to be knowledgeable about the characteristics of students with LD. Important characteristics of these students span emotional, behavioral, cognitive, and social domains of development. We focus on the information that is needed for teachers—whose job is to successfully educate students with LD. For this reason, the discussion of LD characteristics is limited to those that directly affect academic performance and that are thus relevant to strategy instruction.

Attention

Teachers who work with students with LD commonly note that "Things seem to go in one ear and out the other," or they remark on the need to "jog" students back after their attention has wandered. Attention is a critical aspect of successful learning. It is also a complex and multifaceted phenomenon. There are three important aspects of attention. First, there is task engagement. To succeed in school, students must be able persist at tasks. Students with LD are often off-task in the classroom. Research shows that, when left to their own devices, students with LD are on-task only around 30–60% of the time (Bryan & Wheeler, 1972; McKinney & Feagans, 1983). This has obvious educational implications. For example, students who do not complete practice tasks may fail to develop necessary fluency in important skills. Students who stop work when they encounter difficulty will learn less and are more likely to have negative classroom experiences. Maintaining focus is a common problem among students with LD (Hallahan, Kauffman, & Lloyd, 1996). Students with LD are often described as "spacey" or "not with it" or "distractible." Failure to maintain focus has serious consequences. Students whose minds wander while reading a passage will have difficulties remembering information. Students who are daydreaming and, as a result, don't attend to their teacher may not be aware of assignments or may miss important directions. Finally, difficulty with selective attention—the ability to identify important or meaningful information—is also common among students with LD (Brown & Wynne, 1984). As a result, students with LD may attend to unimportant components of a task and ignore relevant information. Exactly why students with LD experience these problems is still unclear, but we do know that much can be done as a part of strategy instruction to improve all aspects of attention.

Memory

One common concern among teachers who work with students with LD is that one day the child can readily remember important information—he or she "got it"—but the next day, for no apparent reason, it's gone. The ability to remember information is obviously critical to academic success. For example, if students cannot remember basic math facts, how commonly used words are spelled, or content-area facts (e.g., Civil War battles or the parts of an atom), they will have difficulty progressing academically. Students with LD exhibit just these types of problems. Research shows that students with LD do have more problems with memory than students without LD (e.g., Gettinger, 1991; Swanson, Cochran, & Ewers, 1990). Research also shows that memory deficits are linked to problems in academic areas (e.g., Ceci, Ringstorm, & Lea, 1981). Historically, these deficits were seen as due to a lack of innate capacity. To use an example, if we were to see memory as one of the "underlying psychological processes" with which students with LD exhibit deficiencies, we might use the metaphor of a bucket to describe the memory problems of these students. For these students it would seem, at least on the surface, as if their bucket were smaller (i.e., have less capacity) and very leaky (more forgetting, problems with retaining information). However, this is a case where appearances are deceiving.

Several factors affect how well a person can remember information. First, the amount of background knowledge, or the knowledge base, can affect memory. Individuals with background knowledge in an area will have an easier time remembering new material in that area than individuals without it. Being familiar with material can enhance memory (Swanson, 1996b). This is a problem for students with LD, as they generally tend to have lower levels of background knowledge. Second, the problem with recall exhibited by students with LD may not be related to a memory deficit, but rather may be a function of their failure to use processes that would allow them to remember. For example, if skilled learners were faced with the task of remembering a series of 10 random numbers, such as 3014056488, they would, almost automatically, use one of several methods for remembering. They might repeat the numbers to themselves several times (i.e., verbal elaboration). Or they might rearrange the information, using "chunking" to group the numbers into fewer components that would be easier to remember (e.g., 30, 14, 05, 64, 88). Both of these processes would improve ability to remember the 10 digits. In contrast, students with LD are unlikely to apply any sort of strategy spontaneously (Swanson, 1996b). In other words, students with LD may lack or not use strategies that would help them remember information. Strategies for improving memory are commonly part of strategy instruction.

Attributions

The term *attributions* refers to the manner in which students explain the cause of academic outcomes. For example, if we asked a successful student, "Why did you get an *A* on the science test?", the answer would probably be, "I got an *A* because I studied hard." In other words, the student attributed the cause of the good grade to his or her own effort to study hard—a controllable, internal factor. Attributions are extremely important because they can affect expectations for success, academic behaviors, and students' reactions to success or failure (Weiner, 1979). Students who attribute a good grade to studying hard have a healthy attribution pattern. Unfortunately, students with LD tend not to exhibit this pattern. These students often attribute success to external factors that they do not control, such as luck or the test being easy. Moreover, students with LD often attribute *failures* to internal, uncontrollable factors such as lack of ability or task difficulty (Chapman, 1988; Kistner, Osborn, & LeVerrier, 1988; Stipek, 1993). Think for a moment about the ramifications of this pattern of attributions. No credit is taken for academic success, only for failure. Any academic success is outside the student; in contrast, failure is internalized. This is an unhealthy or maladaptive pattern that can affect students' academic motivation and performance. Strategy instruction is sensitive to this problem and fosters the development of positive attributions.

Learned Helplessness

Learned helplessness refers to a belief that efforts are unlikely to lead to success. In other words, students believe that no matter how hard they try, they simply won't succeed, so there is no reason to try in the first place (Dweck, 1975). A previous history of

school-related failure has led them to "know" they can't do it. As noted in the preceding section, for many of these students, the source of failure is perceived to be lack of ability ("I can't do this"). Even when they do succeed, these students are likely to attribute the success to outside factors ("The teacher was easy on me"). This pattern has a corrosive affect on academic motivation. Why strive for success if failure is inevitable? Research suggests that the problem of learned helplessness is common among students with LD. Kavale and Forness (1996) found that as many as 70% of students with LD may exhibit learned helplessness.

Lack of Coordinated Strategies

Imagine the following scenario. It's late at night and you are studying for an exam. You're reading a very difficult portion of your text, so you are reading much more slowly than normal. Suddenly you realize that you have no recollection of what you just read on the last two pages. You sigh and begin to carefully reread the section of the text. Though this vignette looks simple, there are several processes going on under the surface. First, you knew that the purpose of reading was to understand the text, so you adjusted your reading speed because you realized that in difficult sections, you need to read more slowly if you are going to remember important information. Second, you realized that you had experienced a lapse in concentration and had no recollection of what you had just read. This realization occurred because you were engaged in ongoing monitoring of your comprehension. Third, after you recognized the lapse, you realized that it was necessary to correct the situation because if you did not, you would miss important information. Finally, you used an appropriate method (going back to reread) to correct the problem.

This scenario has probably happened to you a number of times; it is common among skilled learners. In fact, there is good reason to believe that this sequence of events *describes* a skilled learner. However, this scenario is rare among students with LD; they are unlikely to respond appropriately to the demands of an academic task by using an effective set of cognitive strategies. For example, they will spend less time studying and will not realize that it is necessary to slow down for difficult sections (Bauer, 1987; Wong & Wilson, 1984). They may be unlikely to recognize that they have experienced a problem because they will not be actively monitoring their comprehension (Borkowski, Weyhing, & Carr, 1988; Harris, Graham, & Pressley, 1992). And if they do realize they need to correct the problem, they are unlikely to use an effective method to do so. Students with LD commonly exhibit problems in four areas (Swanson, 1993):

1. They have difficulty accessing, coordinating, and organizing mental activities that occur simultaneously or in close succession.
2. Even when they have an idea of appropriate strategies, students use them ineffectively.
3. They fail to engage in self-regulation of mental activity (e.g., planning, monitoring, revising).
4. They have a limited awareness of the usefulness of specific strategies for a given task.

In short, it seems as if students with LD neither do things spontaneously that would improve their learning, nor in some instances are even aware that such efforts are necessary or appropriate.

WHY A STRATEGY APPROACH?

The federal definition in the IDEA notes that LD is the result of a "disorder in one or more of the basic psychological processes," and the National Joint Council on Learning Disabilities definition states, "These disorders [learning problems] are intrinsic to the individual, [and] are presumed to be due to central nervous system dysfunction." As we noted earlier, the cause of LD has not yet been clearly proven; however, even if we accepted these conceptualizations, they would provide very little in the way of guidance for educators who are charged with teaching students with LD. For example, we can do very little about central nervous system dysfunction. However, at least in part the problems experienced by students with LD are due to difficulties with effective use of strategies. Swanson (1999a) noted that poor academic performances across all ages in students with LD can be seen as a problem in the use of efficient strategies. Students with LD tend to develop fewer strategies and to use strategies less often than typically achieving students (Stone & Conca, 1993). Exactly why this occurs is not certain at present. However, what is well known is that strategy instruction can meaningfully improve performance among students with LD and other struggling learners as well. Therefore, it makes sense to treat strategy use–disuse just like any other academic problem. If students with LD lack effective strategies for an academic task, then *we should teach them effective strategies*.

What about problems with maladaptive attributions or learned helplessness? Strategy instruction addresses these problems by directly using an approach advocated by Licht. In a very influential paper, Licht (1983) argued for a new definition of "ability" that was "incremental." From this perspective, what makes you "smart" is not some unchangeable entity such as intelligence, but rather "an accumulation of knowledge and skills that can be increased through effort. . . . The harder you try, the more you'll learn, and the smarter you'll get" (p. 487). From Licht's perspective, problems such as maladaptive attributions or learned helplessness can be addressed through instruction. If students have unhealthy patterns of attributions, they can be taught appropriate, positive attributions—failure and success depend on effort. If students have developed learned helplessness, they can learn that success can be obtained through the use of effective strategies.

Swanson (1996a) aptly summarized the advantages of the use of the strategy approach:

> A focus is placed on what is modifiable. That is, differences between ability groups are conceptualized in terms of cognitive processes that are susceptible to instruction, rather than to fundamental or general differences in ability. Thus, rather than focusing on isolated elementary memory processing deficiencies, the types of questions . . . are more educationally relevant. For example, a focus is placed on what students with LD can do without strategy

> instruction, what they can do with strategy instruction, what can be done to modify existing strategy instruction, and what can be done to modify existing classroom materials to improve instruction. It [the strategy-oriented approach] allows for the child to be actively involved in the instruction. Students can participate in the analysis of which cognitive strategies work best for them . . . [and] . . . materials can be developed which maximize strategy use. (p. 301)

There are several significant advantages of the strategy approach. First, it assumes that many of the problems experienced by students with LD are due to the lack of, or failure to use, strategies. Thus, from this perspective, past academic problems were not due to an innate lack of ability or capacity, but rather to an ineffective use of abilities. Second, it assumes that if students learn effective strategies, there will be a significant increase in academic performance. Evidence for the strategy deficit hypothesis has been well documented. For example, in the area of memory, Torgesen (1984) found that when students with LD are directly taught memory strategies, there were no differences in recall between students with and without LD on selected tasks. Third, it assumes that strategies can be directly taught and effectively learned. There is now compelling evidence that students with LD can be taught to utilize strategies. Note that this approach *directly empowers* both students and educators; it places the control of learning in their hands. Students can always learn new strategies, and educators can always teach them. Finally, and most importantly, the strategy approach has a *30-year track record of success*. Students' performances can improve markedly as a result of strategy instruction (e.g., Graham & Harris, 2003; Graham & Perin, 2007a; Rogers & Graham, 2008). Furthermore, strategy instruction has also been used successfully within an RTI framework (e.g., Harris et al., 2012).

The last point is undoubtedly the most important. In a time when there are more and more demands for accountability, educators can no longer continue to adopt educational regimens that are not evidence based. Recall the perceptual–motor approach, which appeared logical but was also a complete failure in terms of helping students with LD progress academically. Given the number of students with LD who are at risk for academic failure, we simply cannot afford to use anything less than the best methods we have; and we have a very good idea of which methods are most effective at improving academic learning. Two studies (Swanson, 1999b; Swanson & Sachs-Lee, 2000) using meta-analysis evaluated the effectiveness of numerous teaching methods for students with LD. Meta-analysis allows researchers to combine the results of numerous studies and to test which instructional approach is the most effective. The two studies conducted by Swanson and his colleagues are the most comprehensive investigation of instructional methods for students with LD ever conducted. All told, Swanson's meta-analysis included a total of 163 separate studies with over 1,000 comparisons, encompassing all the basic skill areas: reading, math, and written language. The results were clear-cut. The most effective methods were those that incorporated most of the following elements:

- Explicit explanations, elaborations, and/or plans to direct task performance.
- Verbal modeling, questioning, and demonstration by teachers.

- Cueing, reminding, and/or teaching students to use strategies or procedures.
- Step-by-step prompts or multiprocess instructions.
- Teacher–student dialogue.
- Questioning by the teacher.
- Assistance provided only when necessary.

What instructional method typically incorporates most or all of these components? You have probably guessed. Students taught via the strategy instruction method showed the most improvement compared to other methods. Furthermore, the degree of improvement was impressive. In sum, we can say with confidence that strategy instruction approaches are highly effective for students with LD.

PUTTING STRATEGY INSTRUCTION INTO THE CLASSROOM

By now you may be wondering why strategy instruction isn't widespread. After all, if strategy instruction is effective, and we've known this for decades, shouldn't everybody be using it? Unfortunately it's not that simple for a number of reasons. Educators may choose to use one method over another based on a number of factors: (1) acceptability, (2) effectiveness, (3) time and resources, (4) theoretical orientation of the intervention, and (5) intrusiveness (Witt, 1986). Note that effectiveness is only one of the factors that influence what may be used in the classroom. Another factor could be termed *inertia*. In many cases, educational practices seem to develop a life of their own, independent of their effectiveness. As Heward (2002) noted, teachers sometimes become wedded to ineffective approaches and continue to use them, regardless of whether or not they are effective. Poor communication between researchers and classroom teachers is also a factor (Pressley & Woloshyn, 1995). Researchers often do a poor job of presenting the results of their research in a manner that teachers can grasp and, more importantly, immediately apply.

All of these factors have probably inhibited the use of strategy instruction, to some extent. However, we believe that there is an even more fundamental explanation. Few educators (either inservice or preservice) are provided with any degree of systematic professional development in strategy instruction approaches. This is a critical omission for two reasons. As Kauffman (1996) suggests, practices that are accompanied by systematic professional development are more likely to be adopted and used correctly. Unfortunately, few teachers are given more than a brief exposure to strategy instruction approaches. Training in strategy instruction may be limited to a video or one lecture in a methods course. Although strategy instruction is a very powerful tool, *effective* strategy instruction requires specialized knowledge on the part of the teacher, an investment of time and effort to acquire that knowledge, and an effective model for teaching strategies that addresses the cognitive, self-regulatory, and motivational problems of students with LD. In short, learning to use strategy instruction requires some work upfront. However, the time and effort are not exorbitant, and in our experience, teachers who invest in this training to learn how to effectively teach strategies find it time well spent.

The purpose of this book is to help teachers develop a practical, working knowledge of proven strategies and how to effectively implement strategy instruction in the classroom. Note that although we focus on students with LD, the same basic approach can be used with *any child* who needs help mastering a specific academic task (e.g., long division, writing an essay, comprehending a story). One particular group of students that can profit from strategy instruction is the subset with attention-deficit/hyperactivity disorder (ADHD). ADHD is particularly relevant in the case of LD because there is a considerable overlap (20–40% of students with ADHD also have LD) (Schnoes, Reid, Wagner, & Marder, 2006). For this reason we include information on strategy instruction for students with ADHD when appropriate. The strategy instruction model that we use—the Self-Regulated Strategy Development (SRSD) model—is based on well-established theory and has been validated in over 30 years of research. There are many models for strategy instruction. However, few are as well researched and "user-friendly," and few focus on both academic and motivational aspects of students' learning problems.

FINAL THOUGHTS

The approach that we use in this book mirrors the actual instructional model that we teach. We have discussed why strategy instruction is an important skill for you to learn. Next, we provide the necessary background knowledge to conduct strategy instruction and explicitly explain the components of the SRSD model. We then provide examples of how you might implement various steps in the strategy instruction process in general, and examples of specific, validated strategies for use in major content areas. Our intent is to provide teachers and teacher educators with detailed, practical, step-by-step information on strategy instruction. Moreover, the model contains many components that are useful, in and of themselves, aside from their use in strategy instruction. In closing we emphasize that the method we present is *not* the only way to instruct students with LD. No single method is that powerful. However, mastery of the techniques we present can improve instruction and academic achievement for all students.