SPECIAL EDUCATION: CONTEMPORARY PERSPECTIVES FOR SCHOOL PROFESSIONALS

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0-205-43103-8 Exam Copy ISBN
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Allyn & Bacon
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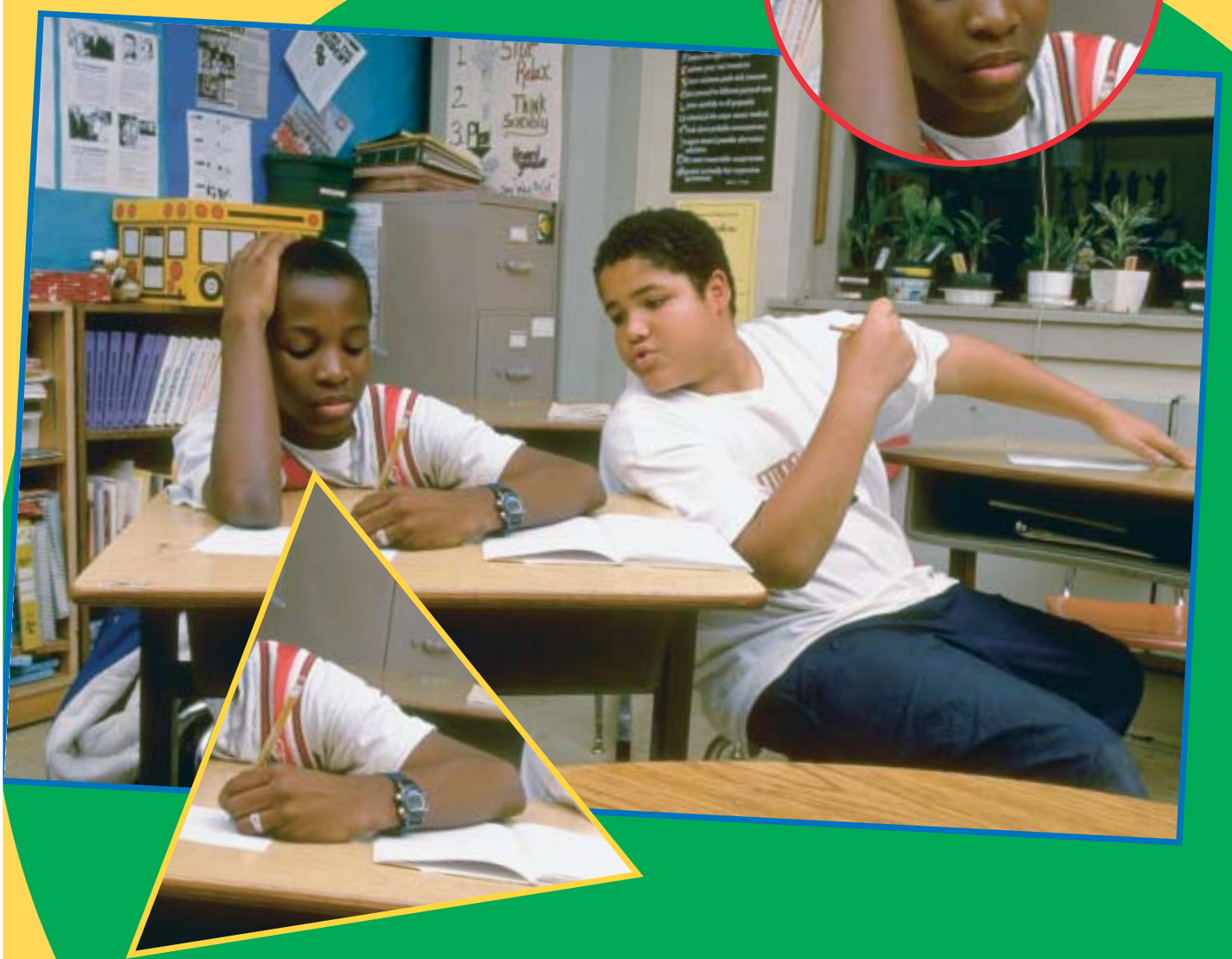
CHAPTER FIVE

Students with Learning Disabilities



BRANDON is a third-grade student in Ms. Garcia's class. Ms. Garcia is very worried about his academic progress: Brandon still is struggling to identify his letters and their sounds, and he dictates his stories to a classroom assistant because he is not able to write the words. Ms. Garcia often has commented that she is certain that Brandon knows a concept or skill taught at the end of the day but that the next day it is as though he has never learned it at all. Brandon's math skills are somewhat more developed, and he is learning multidigit regrouping with zeroes with his classmates. Socially, Brandon seems rather immature. He tends to blurt out whatever he wants to say, and other children complain that they do not want to work with him because he will not take turns and gets angry if his answer is not correct. Brandon was identified last year as having a learning disability, and he currently receives most of his services when his special education teacher co-teaches with Ms. Garcia. However, his IEP team is also considering whether Brandon is a good candidate for an intense phonics instruction program that will soon be implemented at the school.

DANIELLE just started middle school. She likes having several different teachers, but she is still having difficulty remembering where all the classrooms are and all the teachers' names. She is finding that she has to remember to keep all her textbooks with her, take home the right materials to complete her homework, and move promptly from class to class—and organizational skills are a struggle for her. She is also a little worried about whether she will pass all her classes. She likes her science teacher, and all the practical examples and lab activities make it easy to learn. In her other subjects, though, the amount of reading already seems endless. Danielle reads very slowly and often does not understand what she has read. She is hoping her resource teacher will have tapes of some of the books or study guides similar to those she used in fifth grade. Danielle is glad that her best friend Sophie from elementary school is in her classes; Sophie often helps Danielle indirectly by including her in conversations with other students. Danielle was identified as having a learning disability in third grade, and she has received special education services since then. In middle school, two of her classes will be co-taught, and she can also work with the resource teacher during the advisory period, a time during the day when all students can receive extra assistance from their teachers.

DEREK will graduate from high school this year. He was diagnosed with severe learning disabilities early in first grade and has received special education services ever since. During elementary school, he attended a special education class that was located in a school across town, but in middle and high school he attended his neighborhood school and participated in an increasing number of general education classes, receiving the support he needed in a resource room. Derek now reads at

Photo by Will Hart

Learning Objectives

After reading this chapter, you should be able to

1. Define what learning disabilities are, explain their prevalence and causes, and outline the development of the learning disabilities field.
2. Describe characteristics of individuals with learning disabilities.
3. Explain how learning disabilities are identified.
4. Outline how students with learning disabilities receive their education.
5. Describe recommended educational practices for students with learning disabilities.
6. Explain the perspectives and concerns parents and families of students with learning disabilities may have.
7. Identify trends and issues influencing the field of learning disabilities.

approximately a tenth-grade level, and his math skills are close to average for a senior in high school. However, he continues to experience significant problems in written language; when he was last assessed, his writing skills were at an early third-grade level. Derek is an extremely likable young adult; he volunteers to help others and enjoys talking with both peers and adults. He thrives on outdoor work, and he can mow a yard, build a fence, or plant a garden as well as anyone. He definitely wants to get a college degree, but he has decided to start by taking two community college classes next fall. He is a little apprehensive about being able to keep up even though he knows he can receive support from the Office of Disability Services. He is not yet sure what he wants to do for a living, but he is thinking of working in the building industry or in landscape architecture.

Have you ever been in a class—perhaps math or a foreign language—and suddenly realized that you had absolutely no understanding of the information being presented? Even after reviewing your notes and asking questions of classmates, you simply did not grasp the concept. Perhaps the experience left you questioning your abilities and feeling incapable of learning. Have you ever become disoriented while driving in an unfamiliar area? Not only did you not know how to get to your destination but you also were not sure which direction was north or how to get back on your way. Friends may have found your situation funny, but your sense of discomfort was tinged with panic.

Neither of these experiences by itself is a learning disability (LD), but they can give you a small insight into what it is like to have a learning disability and how students with learning disabilities often experience frustration and a sense of failure, particularly in school. Students with learning disabilities comprise the largest group of school-age children receiving special education services, and their number is growing. Their special needs may affect their ability to learn to read, to compute, to speak, to write, or any combination of these. They may experience difficulty remembering, and they may show gaps in their social skills. Students with learning disabilities often are described as "puzzle children" because they can be highly proficient in one area (e.g., math) and significantly delayed in another (e.g., reading).

The field of learning disabilities is multifaceted and somewhat controversial. A few professionals even question whether learning disabilities actually exist (e.g., Finlan, 1993). This chapter focuses on what learning disabilities are and how the study of LD has evolved, how students are identified as having learning disabilities, how students with learning disabilities receive their educational services, and which instructional practices have been demonstrated through research to be most effec-

tive for them. You also will explore how parents and other family members view their children with learning disabilities, and you will have the opportunity to explore current issues facing the learning disabilities field.

What Are Learning Disabilities?

Compared to other disability areas, the field of learning disabilities has had a relatively brief and intense evolution (Hallahan & Mercer, 2001). The work of medical professionals, psychologists, educators, and parents all contributed to the current understanding of this disorder.

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In 1999, Roper Starch Worldwide (www.tremainefoundation.org/ld/roper-poll.pdf) conducted a national survey to measure public awareness and understanding of learning disabilities. Included in the findings are interesting facts: Nearly two-thirds of the public inaccurately associate learning disabilities with mental retardation, and about half attribute learning disabilities to drug or alcohol abuse by parents.

Development of the Learning Disabilities Field

The study of learning disabilities began long before the term was introduced. As early as the nineteenth century, researchers were interested in the impact that injuries to the brain had on adults' functioning (Opp, 1994). In the twentieth century, this line of research continued and became more focused. For example, Goldstein (1942) studied brain-injured soldiers returning from World War I and noted in many cases a high degree of distractibility, an inability to sort essential from incidental stimuli (e.g., the sound of someone speaking directly to them from the noise of nearby traffic), hyperactivity, and a high need for structure and routines (Smith, 1998).

In the 1940s, the work that had been conducted primarily with adults was applied to children. At the Wayne County Training School in Northville, Michigan—a residential facility for children who were mentally retarded or brain injured—psychologist Heinz Weiner and psychiatrist Alfred Strauss observed children with behavior similar to those described by Goldstein, and they concluded the children had brain injuries (Hammill, 1993). Gradually, professionals in the field began to assume brain injury or damage existed for some children even if it could not be documented. Although these children were at first called *brain-injured,* the less-charged term *Strauss syndrome* was soon adopted, and it was later replaced with the label **minimal brain dysfunction.**

A Focus on Process Interventions

During the latter part of the 1940s and throughout the 1950s, emphasis shifted to designing interventions to help children's learning when they exhibited the characteristics now known as learning disabilities. Professionals concluded that the way to accomplish this was to directly address the symptoms of the disorder. They developed programs to improve how their students processed stimuli, that is, the way they interpreted and acted on information in their environments. In addition, these professionals believed that academic learning would improve if students' perceptual skills could be developed. For example, Alfred Strauss and teacher Laura Lehtinen's (1947) book on working with these children recommended specific instructional approaches related to perception (e.g., avoiding the contiguous use of the easily confused letters *b* and *d*) and also removal of all distractions from the learning environment. Bulletin board displays and teacher jewelry are examples of items that were considered distracting. In particular, Laura Lehtinen thought factors such as these interfered with children's ability to think and learn. Kephart (1960) developed a training regimen that focused on developing children's perceptual–motor skills (e.g., balance and eye–hand coordination). Yet another pioneer in the field, Frostig, designed a program to remediate children's problems with visual perception (e.g., tracing a path with a pencil between two undulating lines) (Frostig & Horne, 1964). Notice that none of these programs taught reading or math skills; the assumption

was that by focusing on distractibility and perception and addressing those areas, the ability to learn academic skills would automatically improve.

During the latter part of this period in the development of the learning disabilities field, parents and professionals were arguing that the students being studied—as diverse as they seemed—shared a disorder that had not been recognized previously, and they began to campaign for its consideration. The first public use of the phrase *learning disability* is attributed to Sam Kirk, an early leader in the field, who was speaking to a parent group in 1963. By 1969, the first federal legislation acknowledging learning disabilities was enacted. This law, the Children with Specific Learning Disabilities Act (P.L. 91-230), definitively established learning disabilities as a disability category, and it provided funding for teacher training (Lerner, 2003).

A Focus on Instructional Interventions

Even as learning disabilities were being recognized formally, controversy began. In particular, during the 1960s and early 1970s the process-based interventions that had become the hallmark of the field began to be criticized. A new group of researchers failed to find that such interventions had a direct positive effect on student achievement, and they argued that direct instruction of academics instead of the remediation of processing ability was a superior way to help these students learn (Hallahan & Kauffman, 1976). As the entire field of special education was being redefined through litigation and the passage of the Education of All Handicapped Children Act of 1975 (now IDEA), professionals and parents debated about how to appropriately instruct students with learning disabilities. When research continued to show the effectiveness of direct academic instructional approaches, interest in process methods eventually ebbed (Hammill, 1993).

CHECK YOUR LEARNING

Why do professionals today emphasize direct instructional interventions for students with learning disabilities instead of those related to processing?

In the 1980s, 1990s, and the beginning of the twenty-first century, there have been continued attempts to understand learning disabilities scientifically, to explore alternative instructional methods for students with learning disabilities, and to clarify the nature of learning disabilities in adults (e.g., D. Fuchs & L. S. Fuchs, 1998; Holowinsky, 2000; Kavale & Forness, 1998, 2000a; Roffman, 2000; Swanson, 2000b). Questions have been raised about the number of students who are labeled learning disabled and the relationship between the quality of teaching in schools and the presence of this disorder (Macmillan & Siperstein, 2001). The tumultuous character of the field shows no signs of changing. To meet a young adult who has a learning disability and hear his perspective on his school experiences, read the *Firsthand Account* on the next page.

Definitions of Learning Disabilities

Although the term **learning disabilities** was coined forty years ago and the study of learning disabilities has been pursued intensely ever since, considerable controversy still exists on the topic of what a learning disability really is. In fact, as many as eleven definitions of learning disabilities have been proposed at one time or another (Hammill, 1990). However, the two definitions that are noted most often and that largely shape students' programs and services are (1) the federal definition included in IDEA and (2) the definition proposed by the National Joint Committee on Learning Disabilities. Each is explained in the following sections.

Internet Resources

www.teachingld.org
The Division for Learning Disabilities is part of the Council for Exceptional Children. At its website, you can communicate with professionals working with students with learning disabilities, find answers to questions about this disorder, explore tips for teaching these students, and read current news affecting the field.

Federal Definition

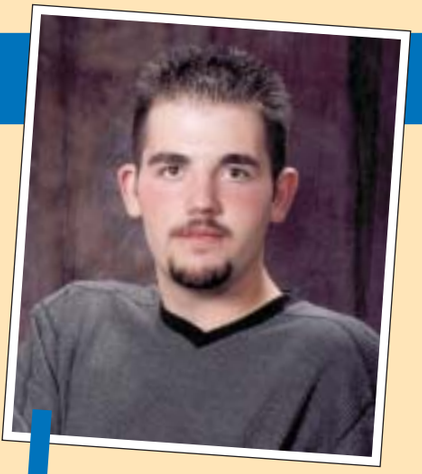
The federal definition of learning disabilities articulated in P.L. 94-142 in 1975 has changed very little since then. According to IDEA,

> The term "specific learning disability" means a disorder in one or more of the basic **psychological processes** involved in understanding or in using language, spoken or written, which may manifest itself in imperfect ability to

FIRSTHAND ACCOUNT

A High School Graduate and Veteran of Special Education

Sam was identified as having a learning disability when he was in first grade, and until graduation in 2002, he received some type of special education support. Here is his story.



As a high school graduate with LD, Sam has a clear message for educators.

Kindergarten was kindergarten. The problems really arose in first grade, and it seemed like the school people—my teacher and the principal—thought my problems at school were my mom's fault. I wasn't learning and I had turned into a little bully, and my teacher wasn't helpful. So I was identified as learning disabled, and in second grade I was in a self-contained class in a school that was twenty minutes away on the bus. I did a lot better there. I didn't have behavior problems. Reading and spelling were definitely still very hard.

As I got older, my mom was always there for me, always on my side. She helped me to become a self-advocate. Eventually, in fifth grade I went back to my home school. I didn't understand it. I was in the regular class and I understood the work—I just couldn't write it down, but for a couple of hours every day they made me go to the special education class. It also seemed like the teachers had preconceived ideas about me. They had heard from the first-grade teacher about my behavior—I wanted to prove them wrong. Those years [fifth grade and sixth grade] were really tough.

Middle school was a lot easier than elementary. I got special education math and English and every other class was regular. Then in high school it changed quite a bit. I had moved to another state and in my new high school I was supposed to have special education English. But I was in an English class with thirty other kids. I was supposed to have regular math and there were only fifteen kids in there. I tried to get them to listen, but my mom had to come to school. They took me out of the math class, but I was doing okay in the English and the English teacher was nice, and we decided to leave me in it and see how it went. And from that time, the only special education class I had was a resource class one period per day—like study hall for special ed.

My senior year was easy because I had worked really hard to get all the requirements out of the way. I took electives—weightlifting and student assistant. I also went to the community college and took plant biology, soil studies, and geology. The second half of my senior year I went only to the community college, but was getting credit in high school.

My reading and math are pretty good now, but my spelling is still awful and writing is a problem. I cannot copy something and listen to someone at the same time. That made notetaking really hard because I couldn't follow a lecture and take notes. I have to concentrate to make the letters. In school, if spelling was involved they would try to make it more manageable, like ten words instead of twenty. I could also take tests in the resource room if I wanted to, with extended time. But I never thought that was a great thing—I pretty much wanted to be normal; I didn't want to be treated differently. But I had to do it in chemistry because I was so slow figuring out some of the problems.

My worst experience in school was going back to my elementary school. My best was returning to the regular room. And now, I want to earn a PhD in psychology. I don't even necessarily want to use it, but I've always wanted to prove them wrong. I still want to prove to that first-grade teacher that I'm not stupid. I can do anything I want in this world. Most kids are not dumb; you just have to reach them a different way. School people need to listen to parents and children; they know what will help that child.

listen, think, speak, read, write, spell, or do mathematical calculations. Such term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. Such term does not include a learning problem that is primarily the result of visual, hearing, or motor disabilities, or mental retardation, or emotional disturbance, or of

environmental, cultural, or economic disadvantage. (IDEA amendments of 1997, P.L. 105-17, June 4, 1997, 11 stat 37 [20 U.S.C. §1401 (26)])

Because states are required to adhere to the requirements of the federal special education law, most of them use either this definition or a variation of it (Schrag, 2000). As you would expect, the definition focuses on school tasks and learner characteristics and needs, and it clearly explains that a learning disability is distinct from other disabilities. What are other important components of the federal definition? As you review the definition, do you notice any problems with it? Any areas in which it is lacking?

NJCLD Definition

The **National Joint Committee on Learning Disabilities (NJCLD)** includes representatives from ten professional and parent organizations concerned about individuals with learning disabilities (National Joint Committee on Learning Disabilities, 2002). This group expressed concern about the federal definition for several reasons, mostly related to what the definition did *not* address: the heterogeneity of students with learning disabilities, the impact of learning disabilities on social perception, the life span nature of learning disabilities, and the possibility that learning disabilities can exist concomitantly with other disabilities.

Because of these perceived deficiencies in the federal definition, the NJCLD approved its own definition of learning disabilities in 1981, one that included the factors just noted (NJCLD, 1990). This definition was revised in 1990 and states the following:

> 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, presumed to be due to central nervous system dysfunction, and may occur across the lifespan. Problems in self-regulatory behaviors, social perception, and social interaction may exist

Research Notes

Many students in ESL programs whom we view as poor language learners are struggling because they, too, have learning disabilities. Teachers can improve the learning climate for them by planning tasks so that different intelligences are needed to perform tasks and by balancing the involvement required of each hemisphere of the brain.

Students with learning disabilities are a diverse group, and no one set of characteristics can describe them all. *Photo by Will Hart*

with learning disabilities but do not by themselves constitute a learning disability. Although learning disabilities may occur concomitantly with other handicapping conditions (for example, sensory impairment, mental retardation, serious emotional disturbance), or with extrinsic influences (such as cultural differences, insufficient or inappropriate instruction), they are not the result of those conditions or influences. (NJCLD, 1990)

Essential Dimensions of a Definition of Learning Disabilities

The debate about a complete and accurate definition of learning disabilities continues to be a serious concern for the field because the precision of the definition can greatly affect the number of students eligible to receive services and the types of services they receive. Some professionals are even calling for new attempts to define learning disabilities (Lyon et al., 2001). However, agreement does seem to be emerging that learning disabilities include these dimensions (Kavale & Forness, 2000b):

The debate about a complete and accurate definition of learning disabilities continues to be a serious concern for the field. Some professionals are even calling for new attempts to define learning disabilities.

- **Learning disabilities encompass a heterogeneous group of disorders.** Students with learning disabilities may have significant reading problems (**dyslexia**), difficulty in mathematics (**dyscalculia**), or a disorder related to written language (**dysgraphia**). They may have difficulty with social perceptions, motor skills, or memory. Learning disabilities can affect young children, students in school, and adults. No single profile of an individual with LD can be accurate because of the interindividual differences in the disorder.
- **Learning disabilities are intrinsic to the individual and have a neurobiological basis.** Learning disabilities exist because of some type of dysfunction in the brain, not because of external factors such as limited experience or poor teaching. More detail on the causes of this dysfunction is presented in the next section.
- **Learning disabilities are characterized by a discrepancy between ability and achievement.** A common description of learning disabilities is *unexpected underachievement*. That is, the disorder exists when a student's measured academic achievement is significantly below that student's intellectual potential.
- **Learning disabilities are not a result of other disorders or problems, but individuals with them may have other special needs as well.** Learning disabilities do not happen because a student has another disorder, but students with learning disabilities may have other disorders. For example, being deaf cannot be considered to be the basis for having a learning disability. However, some students who are deaf also have learning disabilities. Likewise, some students with visual impairments, emotional disabilities, physical disabilities, or other special needs also may have learning disabilities.

CHECK YOUR LEARNING

What are the defining characteristics of learning disabilities?

Prevalence of Learning Disabilities

Although professionals have offered varying estimates of the number of students in schools who have learning disabilities (e.g., Silver, 1988), according to annual data gathered as part of IDEA during the 2000–2001 school year, approximately 2.9

million students between ages six and twenty-one had learning disabilities (U.S. Department of Education, 2002). This represented 50 percent of all students receiving special education, or about 5 percent of the entire school population.

Further exploration of prevalence data reveals several interesting facts. For example, learning disability has been the fastest growing category of special education since the federal law was first passed in 1975. At that time, students with learning disabilities comprised only 22 percent of all students receiving special education (Horn & Tynan, 2001). They now represent half of all students with disabilities. In only the past nine years, the number of students with this disorder has increased more than 28 percent, a rate of growth much greater than the overall rate of growth for the number of students in school. In addition, prevalence is highest for older students (61.5 percent of all twelve- to seventeen-year-old students receiving special education are identified as having learning disabilities) and lowest for younger students (39 percent of all six- to eleven-year-old students receiving special education are identified as having learning disabilities). Prevalence also varies significantly by state, at least partly because of policy differences in the criteria for being considered learning disabled. Whereas Kentucky identifies only 2.24 percent of all its students as learning disabled and Georgia, 2.5 percent, Rhode Island identifies more than twice as many students—6.58 percent—and Massachusetts 6.67 percent (U.S. Department of Education, 2002).

Learning disability has been the fastest growing category of special education since the federal law was first passed in 1975.

The matter of gender can be raised as a prevalence issue, too. Even though research generally demonstrates that boys and girls have approximately the same overall intelligence level (Aiken, 1987) and some studies suggest that learning disability prevalence is also equally distributed (e.g., Alexander, Gray, & Lyon, 1993), a number of researchers have found that the ratio of boys to girls *identified* as having learning disabilities is 3:1, 4:1, or even higher (Lyon, 1997; McLeskey, 1992; U.S. Department of Education, 1992). Many explanations have been offered for this phenomenon: Boys may be labeled as having learning disabilities more frequently because of medical factors, such as their greater vulnerability to prenatal and postnatal brain damage; maturational factors, including their documented slower rate of development; sociological factors, such as societal expectations for high achievement for males; and brain organization factors, including the greater likelihood in boys of genetically based impulsivity (Smith, 1998). In practice, girls identified as having learning disabilities as a group usually have more severe academic deficits than boys (Lerner, 2003).

The Prevalence Puzzle

Taken together, what do all these prevalence figures mean? They illustrate that learning disabilities represent a complex disorder affecting many students. They also demonstrate that the continuing controversy about a precise definition of learning disabilities probably leads to inconsistency in identifying students as having this special need. Especially when juxtaposed with the fact that the incidence of students identified as mentally retarded has been decreasing and the documented desire of practitioners to find "help" for slow and at-risk learners, some professionals have suggested that the learning disability category has become a catchall that now has so many students that those truly entitled to services cannot effectively receive them (Macmillan & Siperstein, 2001). Ultimately, prevalence data also clarify that nearly everyone who works in public schools—special educators, general educators, administrators, related-services personnel—will work with students with this disability and

DIMENSIONS IN DIVERSITY

The National Association for the Education of African American Children with Learning Disabilities (www.charityadvantage.com/aacld) was established to raise awareness and promote understanding of minority children with learning disabilities.

that this group will continue to capture the attention of educators, politicians, parents, and community members.

Causes of Learning Disabilities

As you might suspect from the preceding discussion about the development of the learning disabilities field and the definition of the disorder, in most cases the cause of a learning disability is simply not known, and it is highly unlikely that a single primary cause will ever be identified. Smith (1998) divides the possible causes of learning disabilities into two categories: physiological and environmental.

Physiological Causes

Several possible physiological causes of learning disabilities have been identified by education professionals and medical researchers. These include

- brain injury
- heredity
- chemical imbalance

First, as proposed from the earliest work in the learning disabilities field, *brain injury* probably causes some students' disorders. The injury may occur prenatally, as might happen when a mother consumes alcohol or drugs, contracts measles, or smokes cigarettes. An injury might also occur during the perinatal period, as when a baby is deprived of oxygen during birth. Brain injury also can occur postnatally because of a high fever, a head injury (e.g., falling from a bike or playground equipment), an illness (e.g., meningitis), or an accident (e.g., a near drowning). In the *Technology Notes* on pages 112–113, you can learn more about recent advances in understanding the brain and learning disabilities.

Considerable evidence indicates that another physiological cause of learning disabilities is *heredity.* Teachers have reported for years that many parents of children with learning disabilities comment, "He's just like his father [or mother]." Now research is supporting those claims. In fact, when one or both parents have a learning disability, their children may have as much as a 30 to 50 percent chance of also having that disorder (Castles, Datta, Gayan, & Olson, 1999; Olson, Wise, Conners, Rack, & Fulkner, 1989). If the parent with a learning disability is the mother, the risk is particularly high. Critics of this research have noted that it does not consider possible environmental factors. That is, perhaps parents and their children share learning disabilities because of similar exposure to allergens or environmental toxins such as lead. However, studies of twins and siblings support the heritability of learning disabilities: The reading level of one identical twin is very likely to predict the reading level of the other, even when they are reared apart, and this holds true when one has been identified as having learning disabilities. In contrast, a non-twin sibling's reading level is much less likely to predict the level of the other's when they are reared separately (Olson et al., 1989). This line of research provides evidence of a genetic link.

A third physiological cause of learning disabilities is *biochemical.* For some children, particularly those with significant attention problems, the successful use of medication is offered as evidence that a chemical imbalance is present in the brain. For others, the cause may be related to vitamin deficiency, thyroid problems, or hypoglycemia (i.e., low blood sugar).

You should be careful in attributing learning disabilities to physiological causes. Just because a child has a head injury does not mean that a learning disability is inevitable. Likewise, just because one child has a learning disability does not mean his or her sibling will have the disorder. Emerging medical technology is providing scientists and researchers with new tools for studying the relationship between the brain and individuals' patterns of learning (Bigler, Lajiness-O'Neill, & Howes, 1998;

CONNECTIONS

Although learning disabilities can result from head injuries, students with the IDEA disability called *traumatic brain injury* (TBI) have many different characteristics, as is clarified in Chapter Thirteen.

TECHNOLOGY NOTES

Brain Research and Learning Disabilities

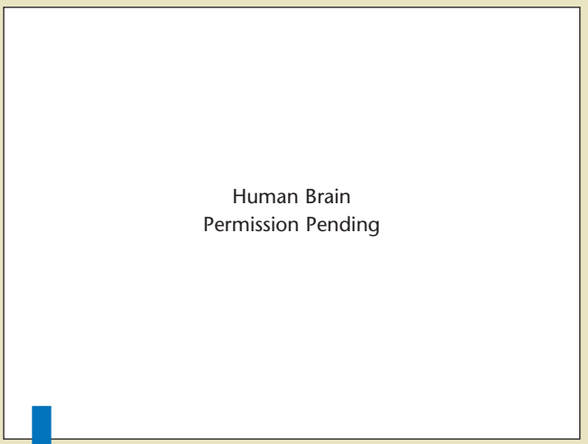
Advances in medical technology are making it possible for scientists to study the human brain and how it works with a precision never known before. This research is leading us to a much clearer understanding about the parts of the brain that are most critical for oral language and reading, and the differences between the brains of individuals who read fluently and those with reading or learning disabilities (Pugh et al., 2001).

Brain Structure

One area of interest to scientists is whether the brains of individuals with LD are physically different from those of others. A technique for studying the structure of the brain is the computed tomography (CT) scan in which the brain is X-rayed and bone, brain matter, and fluids are identified (Fiedorowicz, 1999). Using these data, a computer can then construct an image of a "slice" of the brain. CT scans have shown that the brains for individuals with LD are symmetrical in the area called the occipital lobe (see figure, "The Organization of the Human Brain for Language"), whereas the brains of those without LD are asymmetrical in this area (Bigler, Lajiness-O'Neill, & Howes, 1998).

Brain Function

A second area of scientific interest in brain research is how the brain functions. Several techniques are used to study brain functioning. Some studies use positron emission tomography (PET) scans or single photon emission computed tomography (SPECT) scans in which radioactive material is injected into the brain so that its activity can be measured while participants engage in a reading task. Another technique is functional magnetic resonance imaging (fMRI), which measures blood flow during brain activity. Results of studies using these approaches indicate that oral language and reading use the same parts of the brain and that individuals with LD do not have as much brain activity in the occipital lobe during reading activities as individuals without LD (Joseph, Noble, & Eden, 2001). The



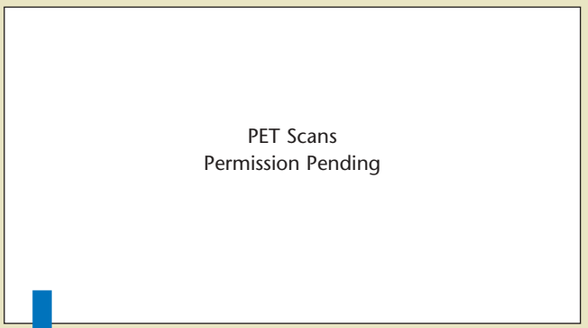
The Organization of the Human Brain for Language

Source: Burns, M. S. (2002, February). *Language and reading in the brain.* Retrieved July 9, 2002, from www.brainconnection.com/topics/?main=col/burns00feb.

Fiedorowicz, 1999). Perhaps in the future the physiological causes of learning disabilities will be more clearly delineated. In the meantime, professionals should consider such information intriguing but somewhat speculative.

Environmental Causes

For some children, learning disabilities are caused by the situations in which they live (Smith, 1998). For example, children who have poor nutrition may develop learning disabilities, as may those who live for an extended period of time in highly adverse emotional climates. Some students have learning disabilities because of toxins in their environments as might happen to children who develop lead poisoning because of lead-based paint in older homes. A few children may even develop learning disabilities because of severe allergies. Yet other children may have too little stimulation (e.g., adults who model language, access to books, experiences such as visits to the zoo). When you think about all these factors, can you identify a single group



Brain Activation during Reading: PET Scan of Brain Activity of a Reader without LD (left) and an Individual Diagnosed with Dyslexia (right)

Note: Because of how such images are captured and presented, the right side of the brain is on the left in the pictures and the left side is on the right.

figure entitled "Brain Activation during Reading" illustrates these brain differences. Another intriguing finding is that males and females differ in their brain activity during reading (Bigler et al., 1998; D'Arcangelo, 1999). A question this raises concerns the disproportionate number of boys compared to girls identified as having LD: Are more boys usually identified as having LD because their brains are different, or is this a matter of teachers' responses to different behaviors in boys and girls?

One other technique used in the study of brain functioning is electroencephalograms (EEGs). Electrodes are attached to the head, and the amount of electrical activity in the brain can then be measured. Individuals who have LD show less of this electrical activity than individuals without LD (Fiedorowicz, 1999). The greatest differences occur when individuals are engaged in activities that require phonological awareness, that is, the ability to relate letters to specific sounds (Burns, 2002).

Implications

Research about the human brain is providing scientific evidence of the anatomical and neurobiological basis of learning disabilities, and as the research continues, our understanding will undoubtedly grow. This information can help parents, teachers, and students recognize that learning disabilities are not about effort or attitude but rather real differences in brain structure and functioning (D'Arcangelo, 1999). It may also eventually help professionals to design interventions for helping students with LD to learn most effectively.

Cautions

Although promising, brain research also must be viewed with caution. Most of the work has been completed with adults, not children, and although it is assumed that the results are valid for both groups, this is not known for sure. In addition, although the different parts of the brain activated during oral language and reading are being mapped, it is not accurate to assume they function exclusive of each other. The relationships among the parts of the brain used for speaking and reading are not known at this time. Next, most studies have involved "reading" single letters or words, not paragraphs or passages. Whether brain function during the latter type of activity is different in any meaningful way from the former is not clear. Finally, information on brain structure and function is not diagnostic, that is, it does not directly tell us the nature of an individual's learning disability or the interventions that might ameliorate or compensate for it.

Source: Bigler, E. D., Lajiness-O'Neill, R., & Howes, N. (1998). Technology in the assessment of learning disability (p. 71). *Journal of Learning Disabilities, 31,* 67–82.

of youngsters who might be most expected to have learning disabilities because of environmental causes? If you thought of children who live in poverty, you are correct. These children also may be placed at greater risk of having learning disabilities because of poor medical care or low parent education level.

One other environmental cause of learning disabilities should be mentioned. Although in an ideal world this paragraph would not need to be written, some students have learning disabilities because of poor teaching (Lyon et al., 2001). When teachers use outdated instructional practices, do not consider the differences in their students' maturational levels, and ignore their students' learning styles, they can cause some students to display characteristics of learning disabilities. This cause of learning disabilities is one of the most controversial. Some professionals believe that students who receive poor instruction should not be identified as having the disorder (see the NJCLD definition), whereas others argue that if teaching has been so inadequate that a learning disability is created, that student should receive the benefit of a specialized education to remediate the problem (Lyon et al., 2001).

CHECK YOUR LEARNING

What are two categories of causes of learning disabilities?

What Are the Characteristics of Individuals with Learning Disabilities?

It would be inaccurate to try to portray individuals with learning disabilities as sharing many characteristics. They are an extraordinarily heterogeneous group with different areas of strengths and special needs. By looking at the cognitive, academic, social/emotional, and behavior characteristics of individuals with learning disabilities, you can begin to see how diverse this group really is.

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Cognitive Characteristics

Although students with learning disabilities typically have average or above average intelligence, they usually display weaknesses in one or more areas of cognition, including attention, perception, memory, or thinking/processing.

Attention

Students with learning disabilities may have poor selective attention (Mayes, Calhoun, & Crowell, 2000; Zera & Lucian, 2001). One way to illustrate what this means is to think about the setting you are in as you read this paragraph. Stop to listen and look around. Is a computer humming in the background? Is a brightly colored graphic bouncing across its screen? Is air blowing from a vent? Is there noise in the hallway or on the street? Is there a pile of other reading material right beside you? Until you were directed to notice items such as these, you had ignored them because your attention was devoted to reading your textbook. Students with learning disabilities may have extraordinary difficulty attending to only the important stimuli in their environments. The other reading material is as captivating as the book in front of them; the plane overhead is as noticeable as the teacher's voice. Attention is explored further in Chapter Six in relation to students with ADHD.

Perception

Many students with learning disabilities exhibit perceptual problems (Lerner, 2003; Smith, Dowdy, Polloway, & Blalock, 1997). Perception does not pertain to whether a student sees or hears but rather to how that student's brain interprets what is seen or heard and acts on it. For example, a student with a visual perception problem may see perfectly well the letters *w-a-s* written on the page. What the brain interprets them to be, however, is *s-a-w.* Other symptoms of visual perception difficulties include spatial orientation and judgment (e.g., knowing exactly where you are in relation to objects nearby and how to safely get from one point to another); the ability to distinguish right from left; labored handwriting; letter reversals in writing; and overall clumsiness or awkwardness in walking, skipping, balancing, and other large-motor activities (Smith, 1998). Problems in auditory perception often include difficulties with perceiving sounds that are not attributable to a hearing loss (Kruger, Kruger, Hugo, & Campbell, 2001). For example, some students may have trouble

Internet Resources

www.ldonline.org
LD Online is one of the best known sites for teachers and parents of children with learning disabilities. It offers expert advice and contains recent news on learning disabilities. It also has a section for children to share their experiences.

understanding whether the word spoken was *team* or *teen, odor* or *over, pet* or *bet*. Of course, the result can be misunderstood directions, poor communication, and awkwardness in social interactions.

Memory

In addition to problems related to attention and perception, students with learning disabilities may experience problems with memory (Swanson, 2000a). Everyone has two types of memory: short term and long term. **Short-term memory** is the mechanism by which a person holds information in the mind for a brief amount of time, less than a minute. Unless it is acted on in some way, it is gradually lost. One simple example is when you look up a phone number. You remember it long enough to dial it, but if you delay dialing you probably have to look it up again unless you have consciously taken steps to remember it (e.g., by repeating it several times). **Long-term memory** is the permanent storage mechanism in the brain, and information to be remembered generally has to be transferred from short-term to long-term memory. An example might be verses from a favorite childhood song: Even if not recalled for many years, you can still sing the words as soon as you hear the title *If You're Happy and You Know It* or *The Barney Song*.

Students with learning disabilities may have difficulty with either short-term memory or long-term memory, or both. For example, some students cannot recall verbal information right after it was learned; this is a short-term memory problem. This factor probably accounts for the situation in which a teacher says that a student knew the information just a minute ago, the way Ms. Garcia noticed this of Brandon in the vignette at the beginning of this chapter. The teacher is correct: The student did know it then but did not transfer it to long-term memory, so it was lost. Other students may not be able to retrieve information they have in long-term memory. For example, a teacher may ask a student a question relating the character in a previously read novel to one in the current novel. Even though the student enjoyed and understood the previous novel, without a strategy for "finding" that information in long-term memory, the student cannot recall that story and cannot answer the teacher's question. As you think about short-term and long-term memory and learning, how else might you see problems in these areas manifested by students with learning disabilities?

CONNECTIONS

If you look ahead to the characteristics of students with attention deficit-hyperactivity disorder in Chapter Six, you will see that some overlap can exist with learning disabilities.

Information Processing

Finally, students' general information processing or thinking skills may be deficient (Geary, Hoard, & Hamson, 1999). Students with learning disabilities may have difficulty with **metacognition,** that is, thinking about thinking. They may lack the ability to actively consider how new information being learned relates to other information already stored, or how to apply that knowledge in a novel learning situation. For example, as you read this chapter, you probably are actively relating the concepts to people you know who have learning disabilities, or perhaps to knowledge you acquired in a course in psychology. You might also be using a strategy to help you remember information that may be on a test, for example, by repeating key ideas aloud. You talk to yourself to help yourself learn. These are all metacognitive activities. Without explicit training (discussed in a later section of this chapter), some students with learning disabilities will not use such strategies to foster their learning.

Academic Characteristics

By far the most commonly noted characteristic of students with learning disabilities is their struggle with school learning. Their difficulties may occur in reading, spoken language, written language, mathematics, or any combination of these. Academic

difficulties comprise the most likely reasons for classroom teachers to suspect a student has LD, and such difficulties often are emphasized in the services provided by special education teachers.

Reading

Most students with learning disabilities experience significant problems in the area of reading (Smith et al., 1997), particularly in the areas of phonological awareness, fluency, or comprehension. First, some students struggle with phonological awareness, that is, the ability to make the connection between letters and the sounds they stand for that is essential for developing reading skills. These students are not able to "sound out" words, and they often rely on visual cues or the context in which a word is used to determine what the word is.

Other students struggle with oral fluency (Mercer, Campbell, Miller, Mercer, & Lane, 2000). They may read aloud in a word-by-word manner without appropriate inflection or rhythm, unable to relate the patterns of spoken language to the printed word. Students with weakness in this area often dread being asked to read in class, and when they do read, they are not aware of how exclamation points, question marks, and other punctuation signal to the reader how to change the voice.

One other typical reading problem for students with learning disabilities is comprehension (Gersten, Williams, Fuchs, Baker, & Koppenhaver, 1998). Unlike the student previously described who labors to say each word, some students are able to read a passage so fluently that you might assume they were highly proficient readers. However, when they are asked questions about what they have read, they have little or no understanding of the words. Students with this problem sometimes are referred to as *word callers*. Not surprisingly, students who have difficulty with phonological awareness and oral fluency also are likely to experience weakness in reading comprehension.

You might find that some people refer to reading problems of all sorts as *dyslexia* (e.g., Bell, McCallum, & Cox, 2003). The *Professional Edge* on the next page clarifies the use of this term and strategies for addressing dyslexia.

DIMENSIONS IN DIVERSITY

When Hispanic students in the primary grades were provided with supplemental reading instruction (e.g., word attack skills), their overall fluency and literacy increased. This result occurred regardless of the students' initial levels of English proficiency (Gunn, Smolkowski, Biglan, & Black, 2002).

Oral Language

Another academic area that can be a significant problem for students with learning disabilities is oral language (Snyder & Downey, 1997). Problems usually fall into the areas of phonology, morphology, syntax, or pragmatics.

First, students may have difficulties with *phonology,* that is, using the correct sounds to form words. They may struggle with *morphology,* the study of the smallest meaningful units of language (e.g., that *-ed* denotes past tense or that *pre-* means before). Likewise, students may have problems with *syntax,* the rules of grammar, or with semantics, the meanings of words or phrases. Finally, *pragmatics*—the ability to successfully participate in interactions with others—may be a weakness. If you think about all these elements of spoken language, you can begin to see how pervasive the effects of this type of learning disability can be. For example, a student with poor oral language skills may miss subtle meanings of words during conversations or might fail to understand the punch line of a joke based on word meanings. They also may have difficulty in participating in conversations with classmates or adults.

Research Notes

Recent research by the National Institutes of Health indicates that about 20 percent of the school population has difficulty acquiring early reading skills. Many of these children are later diagnosed as having learning disabilities.

Written Language

For some students, learning disabilities are manifested in written language (Roth, 2000; Wong, 2000). For example, the motor coordination required for handwriting can be overwhelming for some students. As shown in the sample in Figure 5.1 on page 118, it is nearly impossible to determine what the student has written even though the words form complete sentences and are spelled correctly. For other students, the deficiency is spelling. Not only do these students labor to discern the

◀ PROFESSIONAL EDGE ▶

Understanding Dyslexia

The term *dyslexia* is used a lot these days. You hear that a friend's child has dyslexia, or you see a person who is dyslexic on television, or you read that Albert Einstein and Thomas Edison had dyslexia. The word *dyslexia,* which means developmental word blindness, has a medical sound to it, so you may automatically assume that it is medically based. Yet we really do not know what dyslexia is. Some people believe dyslexia is a brain disorder, that people with dyslexia have a different brain structure that leads to difficulties in processing oral and visual linguistic information, and that this faulty brain structure is genetically based (Flowers, 1993). Although research using more sophisticated technology provides some support for a genetic, neurological basis for reading problems (Filipek, 1995; Pennington, 1995; Shaywitz, Pugh, Jenner, Fulbright, Fletcher, Gore, & Shaywitz, 2000), the evidence is still largely circumstantial (Kender & Kender, 1998). In any case, knowing the cause of severe reading problems is one thing; knowing what to do to help students who have these problems is another altogether. Perhaps the best way to describe dyslexia at this point is to say that it is a term used to describe any serious reading difficulty.

Put very simply, students with dyslexia have serious problems learning to read despite normal intelligence, normal opportunities to learn to read, and an adequate home environment. Although the precise organic cause of dyslexia is unknown, considerable evidence suggests that reading problems associated with dyslexia are phonologically based (Lyon, 1998; Stanovich & Siegel, 1994). Students with dyslexia have difficulty developing phonemic awareness, the understanding that spoken words are composed of sounds. Phonemic awareness problems make it hard for them to link speech sounds to letters, ultimately leading to slow, labored reading characterized by frequent starts and stops and multiple mispronunciations. Students with dyslexia also have comprehension problems largely because the struggle for them to identify words leaves little energy for understanding what they read.

Students with dyslexia also have trouble with the basic elements of written language, such as spelling and sentence and paragraph construction. Finally, students with dyslexia may have difficulty understanding representational systems, such as telling time, directions, and seasons (Bryan & Bryan, 1986). Dyslexia commonly is considered a type of learning disability, and students with dyslexia are served under the learning disability classification of IDEA.

It is important to identify students with dyslexia or other severe reading disabilities early, before they fall far behind their peers in word-recognition reading skills. Students who appear to be learning letter names, sounds, and sight words at a significantly slower rate than their classmates are at risk for developing later reading problems.

From the Research

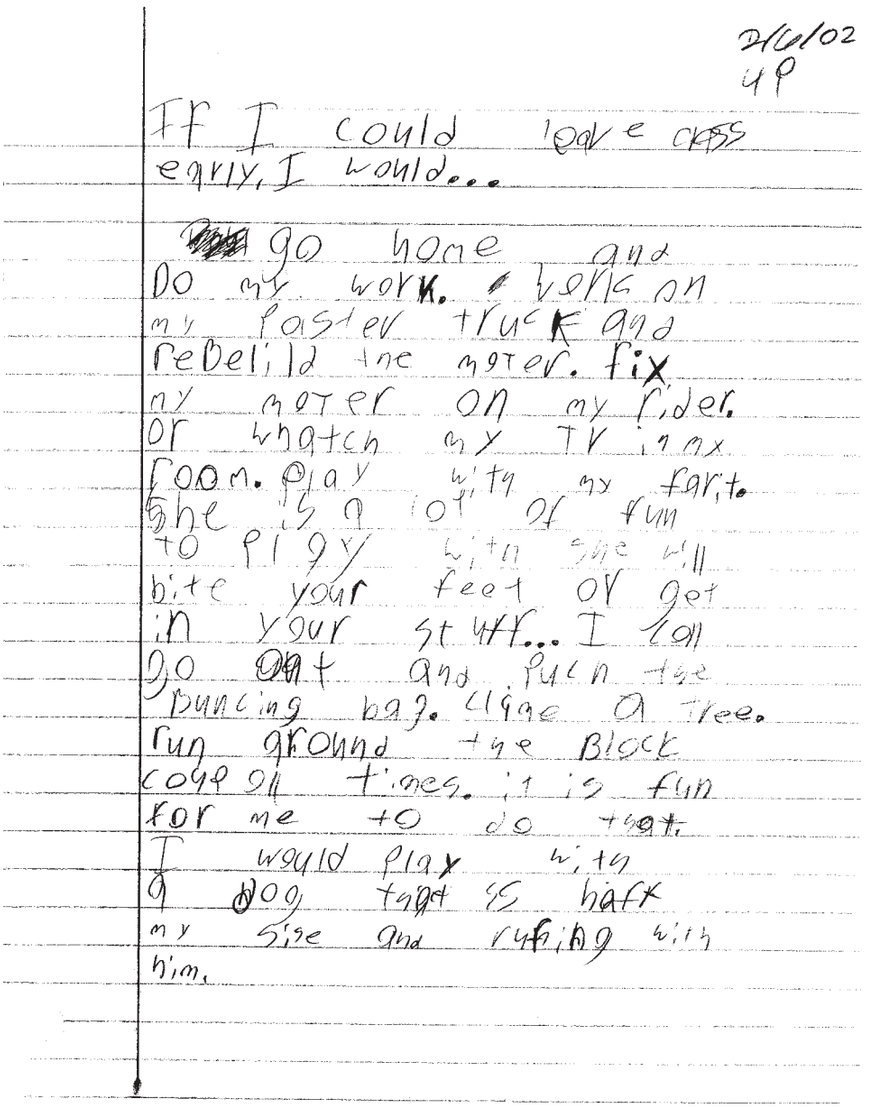
A large body of research (Blackman, 2000; Oakland, Black, Stanford, Nussbaum, & Balise, 1998; Snow, Burns, & Griffin, 1998; Swanson, 2000c) shows that many students with severe reading disabilities benefit from a beginning reading program that includes the following elements:

1. **Direct instruction in language analysis.** For example, students need to be taught skills in sound segmentation or in orally breaking down words into their component sounds.
2. **A highly structured phonics program.** This program should teach the alphabetic code directly and systematically using a simple-to-complex sequence of skills, teaching regularity before irregularity, and discouraging guessing.
3. **Writing and reading instruction in combination.** Students need to be writing the words they are reading.
4. **Intensive instruction.** Reading instruction for at-risk students should include large amounts of practice in materials that contain words they are able to decode.
5. **Teaching for automaticity.** Students must be given enough practice so that they are able to read both accurately and fluently.

For students who are dyslexic, visit Dyslexia: The Gift, at www.dyslexia.com, for curriculum aids, a bookstore, a discussion board, and links to further information.

Source: Friend, M., & Bursuck, W. D. (2002). *Including students with special needs: A practical guide for classroom teachers* (3rd ed., p. 208). Boston: Allyn & Bacon.

FIGURE 5.1 • Writing Sample from a Student with Learning Disabilities


2/6/02
4P

If I could leave ckss
early, I would...

go home and
Do my work. I work on
my faster truck and
rebeild the motor. fix
my motor on my rider.
or watch my TV in my
room. play with my fart.
She is a lot of fun
to play with she will
bite your feet or get
in your stuff... I can
go out and run the
bunching bag. climb a tree.
run ground the Block
coup 9 times. it is fun
for me to do that.
I would play with
a dog that is half
my size and ruffing with
him.

sounds comprising words but they also may be unable to distinguish between appropriate uses of homonyms (e.g., *meet, meat; there, their*), or they may be unable to recognize when they have written a misspelled word (e.g., *seperate* instead of *separate; advise* instead of *advice*). Students also may have difficulty knowing when and how to punctuate the sentences they write (e.g., not only the appropriate application of periods and commas but also the use of apostrophes as in *it's—it is* instead of *its*—possessive form), and they may also be uncertain about capitalizing words (e.g., My Brother likes mexican food).

However, in an era when spelling, punctuation, and many other written language mistakes can be corrected with computer software and other electronic tools, per-

Technology is an effective way to facilitate writing for students with learning disabilities. *Photo by Paul Conklin/PhotoEdit*

haps the most serious issue for students with learning disabilities in written expression is composition skill. In order to write effectively, students need to be able to organize their thoughts, present them in some type of logical order, and provide enough details to convey the intended message to readers (Singer, 1995; Williams & Ward-Lonergan, 2001). These tasks can be exceedingly difficulty for students with learning disabilities like Derek, who was described at the beginning of the chapter. When telling a story, they may make assumptions about what the reader knows (e.g., not explaining who a main character is but writing as though the reader is familiar with this character) or jump from topic to topic (e.g., mixing together information about the causes, battles, and outcomes of World War II instead of presenting them as categories of information). Because of their disability, they sometimes struggle with using adjectives to enrich their writing (e.g., "The meal was good. We had lots of stuff" instead of "Thanksgiving dinner was delicious. We devoured turkey roasted to a golden brown, fluffy mashed potatoes, crunchy green bean casserole, and pecan pie"). As these students move through school, they are unlikely to be able to easily succeed in the many school tasks that rely on clear written expression.

Research Notes

Gersten, Baker, and Edwards (1999) report that strategies for teaching writing to children with learning disabilities result in significant improvements in the quality of students' written expression. The most successful interventions include planning, writing, and revision, with explicit instruction in the writing process and feedback from teachers and peers.

Mathematics

A final domain in which students with learning disabilities may experience difficulty is mathematics (Cawley, Parmar, Yan, & Miller, 1998; Mazzocco, 2001; Witzel, Smith, & Brownell, 2001), a disorder sometimes referred to as *dyscalculia*. Some students are not able to learn basic math facts or fundamental computational skills. Others cannot grasp the principles of estimation, mental calculations, or probability. Yet others find mastery of fractions or decimals difficult. For some students, learning various types of measurement or concepts related to time is extraordinarily challenging. Geometry is a weakness for others. One other area that may cause difficulty is problem solving. Whether because of the reading requirement or the inability to understand the mathematical concepts captured in the problem, students with learning disabilities may be unable to sort critical from extraneous information,

Research Notes

Although 95 percent of public schools report that they enroll children with disabilities, fewer than 65 percent of those schools provide assistive or adaptive hardware, and fewer than 57 percent provide software to make computers accessible to these students. Such adaptations are least available to students in schools with the highest poverty concentrations.

to recognize the correct computational procedure, or to determine whether the answer they obtain is reasonable (Jordan & Hanich, 2003).

Social and Emotional Characteristics

Understanding the social and emotional characteristics of students with learning disabilities is as important as understanding their cognitive and academic traits. How students perceive themselves and others and how adept they are in social situations can significantly affect their learning success (Welsh, Parke, Widaman, & O'Neil, 2001). Further, for some students with learning disabilities for whom academic tasks will always be very challenging, their accomplishments in life may depend on this ability to interact effectively with others. Two areas are particularly relevant: social perception and motivation.

Understanding the social and emotional characteristics of students with learning disabilities is as important as understanding their cognitive and academic traits.

Social Perception and Social Competence

As many as 75 percent of students with learning disabilities may have some type of deficit in the area of social skills (Kavale & Forness, 1996). When compared to peers without disabilities, these students tend to have lower self-esteem. They often are less accepted by their nondisabled peers than are other students, and they are more likely than typical peers to be rejected by classmates (Pavri & Luftig, 2000). Danielle, the middle school student discussed at the beginning of this chapter, experiences such difficulties.

Studies of teachers' ratings also suggest that students with learning disabilities have lower social status than other students (Kavale & Forness, 1996), a fact that may be explained in two ways. First, among nondisabled peers who value school and proficiency at school-related tasks, students with learning disabilities may be viewed as less-desired classmates because of their academic struggles. Second, status of students with learning disabilities may be related to their social competence, that is, their ability to accurately receive, interpret, and respond to the subtleties of interpersonal interactions (Ellis, 1998). Michael exemplifies problems in social competence. He was seated on the floor of the office in a middle school with several of his peers, waiting to be seen by the principal about an altercation that occurred during lunch. The boys were discussing a variety of topics including who had "won" the cafeteria shoving match and who had bragging rights for the lowest grades on their recently issued report cards. In the middle of this conversation, Michael chimed in, "I'm going to see my Grandma next weekend." Even though the other boys' topics of conversation may not have been those preferred by an adult, Michael's comment illustrates his obvious lack of awareness of the nuances and expectations of him in this social situation. The other boys immediately began making fun of him. As you might expect, students with learning disabilities who have poor social skills often are reported to have difficulty making and keeping friends (Pavri & Monda-Amaya, 2001; Wiener & Sunohara, 1998), and especially through adolescence and adulthood they may feel lonely and isolated (Tur-Kaspa, Weisel, & Segev, 1998).

It is very important to note, though, that the picture of social competence for students with learning disabilities is not clear; not all of these students have social problems (Greenham, 1999). Some students with LD are well-adjusted and well-liked by their peers and teachers (Brown & Heath, 1998). One explanation for this finding concerns learning environments. When teachers value and respect students, focus

on their abilities, and create a supportive social environment, students thrive. Conversely, when too much emphasis is placed on students' problems, they become negative about themselves and are viewed in this way by peers.

Another explanation is offered by those who hypothesize that students with learning disabilities and poor social competence form a distinct subgroup who have **nonverbal learning disabilities** (NLD) (Court & Givon, 2003; Franz, 2000; Telzrow & Bonar, 2002). They may read and speak fluently, but because of a dysfunction in the part of the brain that controls nonverbal reasoning, they are unable to accurately interpret nonverbal communication—such as facial expressions, posture, and eye contact—and thus they fumble in social interactions. For example, a student with this disorder might not recognize that he is receiving "the look" from a teacher or parent and thus may not change the behavior at issue. Likewise, this student might keep talking during a conversation, failing to understand the signals from others that they would like to talk, too. More information about NLD is included in the *Professional Edge* on page 122.

Internet Resources

www.matrixparents.org
An excellent website for parents, the Matrix Parent Network for Parents of Children with Learning Disabilities includes a discussion board for parents to exchange ideas.

Motivation

Many special education and general education teachers, especially those in middle and high schools, comment that students with learning disabilities are not motivated to learn, and research suggests that this is a common characteristic (Fulk, Brigham, & Lohman, 1998). Motivation is the desire to engage in an activity. This desire can be **intrinsic motivation** (e.g., out of curiosity, as when you complete a crossword puzzle simply to see if you can) or **extrinsic motivation** (e.g., for payment, as when you agree to help a neighbor with chores to earn money for a planned vacation). Ideally, all students would be intrinsically motivated to learn, but many students with learning disabilities are not. This could be due to what is called their *locus of control,* which is their belief about whether their life experiences are determined by internal (e.g., personal effort and skill) or external (e.g., luck) factors. Students with learning disabilities often attribute academic success to external factors and failure to internal factors. For example, if a student with learning disabilities does well on a test, he may comment that it is because of "good luck" or "an easy test." If the student does not pass it, he may say, "I'm dumb." You can easily see how this would eventually lead to low levels of motivation.

However, whether motivation is a characteristic of some students with learning disabilities because of neurological dysfunction or an effect of students' school experiences is difficult to determine (Dev, 1997). For example, some students demonstrate **learned helplessness** by giving up on a task before they even try. They may do this because they have failed at so many school tasks that they would rather not begin the work than fail again, or they may have discovered that if they say they cannot do a task, the teacher or a peer will help them do it.

Behavior Characteristics

If you think about the possible results of having deficits in academic subjects, selective attention, social competence, and motivation, you would probably conclude that a significant number of students with learning disabilities (although not all) also have behavior problems. You are correct. Some researchers have even found that students with learning disabilities and students with emotional disabilities are similar in terms of the types of behavior problems experienced; what is different between the two groups is the severity of the problems (e.g., Handwerk & Marshall, 1998). It is unclear whether the behaviors are part of the learning disability or a result of the frustration that many of these students experience (Farmer, 2000). For some students, difficulties in communicating with others may lead to inappropriate behavior (Vallance, Cummings, & Humphries, 1998). For others, the prospect of not being able to complete an academic task might cause the student to act out, a sort of

◀ PROFESSIONAL EDGE ▶

Nonverbal Learning Disabilities

Although most professionals are reluctant to identify specific subgroups within the LD classification, recent attention has been given to students with nonverbal learning disabilities (NLD). Students with NLD are thought to have characteristics that make them very different from the more common problems associated with LD: reading and mathematics. Here are characteristics and indicators of NLD:

Primary Characteristics of NLD	**Possible Indicators of the NLD Syndrome**
Stronger verbal than perceptual cognitive skills	Higher verbal IQ than performance IQ scores Stronger on verbal than visual attention and memory tasks
Weak psychomotor and perceptual motor skills	Physically awkward: slow to skip, ride bike, jump rope Difficulty with tracing, cutting, and coloring Sloppy handwriting
Deficiency in arithmetic	Better reading and spelling than arithmetic performance Problems with number alignment and directionality Confusion of mathematical symbols and problem-solving sequences
Difficulty with novel and complex tasks	Rote memory performance superior to tasks requiring integration and synthesis Reliance on automatic verbal responses in novel situations
Poor problem-solving skills	May be inflexible, unable to consider alternative actions Difficulty with changes in routine
Social and interpersonal deficits	Misinterprets social cues: may be too impulsive, too familiar Tendency to be teased or bullied; prone to social withdrawal Pedantic, "little professor" style of communication Unusual prosody, such as mechanical, "robotlike" speech Difficulty understanding jokes or sarcasm Limited self-awareness; unrealistic in vocational choices
Psychosocial adjustment problems	Evidence of inattention and hyperactivity during preschool and primary grades Higher prevalence of anxiety and depression during adolescence Increased risk of suicide during adolescence and young adulthood

Source: Telzrow, C. F., & Bonar, A. M. (2002). Responding to students with nonverbal learning disabilities. *Teaching Exceptional Children, 34*(6), 8–13.

learner "road rage." Examples of behavior problems that have been studied for students with learning disabilities include excessive out-of-seat behavior, talk-outs, and physical and verbal aggression.

One of the difficulties in discussing the behavior characteristics of students with learning disabilities is the fact that a significant number of students have comorbid (that is, occurring simultaneously) learning disabilities and **attention deficit–hyperactivity disorder (ADHD)** (Willicutt & Pennington, 2000); estimates range from 15 to 70 percent or more (Forness & Kavale, 2001; Mayes et al., 2000). This raises the possibility that the behavior problems of some students with learning disabilities are, in fact, symptoms of a second disorder. Details about the characteristics of students with ADHD are covered in Chapter Six. The *Positive Behavior Supports* on page 123 provides one example of educators' efforts to help students with learning disabilities learn acceptable classroom behavior.

Positive Behavior Supports

Teaching Students to Manage Their Own Behavior

Many students with learning disabilities can learn to manage their own behavior. Steps to teaching them this research-based approach include the following:

1. Help the student clearly identify the problem behaviors to be changed. Try to focus on behaviors that are harming the student's classroom success. If problems are particularly serious, do not try to change too many behaviors at one time.
2. Define the behavior to be demonstrated clearly, using words the student understands.
3. Collect baseline data with the student. You and the student should monitor the desired behavior to see how often it occurs.
4. Schedule a conference with the student to discuss the behavior of concern, identify the alternative behavior, gain student commitment to try to change, and explain the student's responsibility. You should also help the student set realistic goals for increasing the positive behavior.
5. Decide with the student on how to record the behavior and how often.
6. Teach the student how to use the self-management procedures.
7. Implement the plan.
8. Monitor how well the student is doing by periodically recording the same information that the student is recording. Reward the student for being accurate in recording, even if the behavior is still not at the desired goal.
9. Follow up once goals are reached to ensure ongoing success.

Review the figure below, which is one example of a self-management recording sheet for a student. This sheet lists several behaviors, a judgment made by the teacher. How could you adapt such a sheet for use with younger students? Older students? Can you think of other situations in which this type of approach to address student behavior could be successful?

Classroom Self-Monitoring Scale

NAME: _____ DATE: _____

CLASS: _____ TEACHER: _____

Circle one of the four choices
4 = Always 3 = Most of the time
2 = Some of the time 1 = Did not do

1. Worked without disturbing others.	4	3	2	1
2. Participated in class.	4	3	2	1
3. Listened and paid attention when the teacher was talking.	4	3	2	1
4. Asked for help when I needed it.	4	3	2	1
5. Followed teacher directions.	4	3	2	1
6. Completed class assignment.	4	3	2	1
7. Turned in completed assignment.	4	3	2	1

Student Score _____

28–24 SUPER
23–20 GOOD
19–14 FAIR
13–0 MAKE A PLAN

Source: McConnell, M. E. (1999). Self-monitoring, cueing, recording, and managing: Teaching students to manage their own behavior. *Teaching Exceptional Children, 32*(2), 14–21.

How Are Learning Disabilities Identified?

In order for students to receive special education services to address their learning disabilities, they must be identified as being eligible for them. This involves assessments to determine the existence of learning disabilities. Based on the information derived from these assessments, the multidisciplinary team must decide that the disability exists and that students are eligible for services (if the disability negatively affects educational performance).

Assessment

In Chapter Two, you learned that all students who receive special education services first go through a careful process of assessment. For students with learning disabilities, this process includes both formal and informal assessment. These assessments are designed to create a picture of a student's learning capacity, academic achievement in reading and mathematics, social and emotional skills, and behavior patterns.

Formal Assessments

The formal assessments used to determine whether a student has a learning disability are either norm-referenced or criterion-referenced tests. Norm-referenced tests are those in which the student taking the test is being compared to a large number of students, or norm group. Examples of norm-referenced tests used to identify learning disabilities include *intelligence tests,* such as the Wechsler Intelligence Scale for Children–III (Wechsler, 1991), and *achievement tests,* such as the Woodcock-Johnson Psychoeducational Battery–Revised (Woodcock & Johnson, 1989). Another example is the relatively new Learning Disabilities Diagnostic Inventory (LDDI) (Hammill & Bryant, 1998). The LDDI was specifically designed to assist professionals in identifying in school-age children intrinsic processing problems related to listening, speaking, reading, writing, mathematics, and reasoning. Unlike other assessments that compare the achievement of students to all other students, it compares the learning patterns of the student only to those of students known to have learning disabilities.

Another type of formal assessment may be used during an evaluation for LD—criterion-referenced tests. These tests are designed to determine whether a student has learned a specific body of information, so they represent an absolute standard rather than the comparative standard of norm-referenced tests. One example of a criterion-referenced test nearly everyone has experienced is a driver's test. The test is designed to determine whether you have learned enough to drive an automobile safely; comparing you to others is not relevant. Examples of criterion-referenced tests to assess for learning disabilities include the Stanford Diagnostic Reading Test (Karlsen & Gardner, 1955) and the Brigance Diagnostic Inventories (e.g., Brigance, 1999).

Classroom Assessments

Classroom assessment information, usually considered informal, is the second type of data gathered to determine whether a student has a learning disability. Three types of classroom assessments are most often used: curriculum based measurement, portfolio assessment, and observations.

Internet Resources

www.cldinternational.org
The International Council for Learning Disabilities is an organization for professionals interested in learning disabilities. Its website addresses current issues regarding LD.

CONNECTIONS

You can review the assessment procedures required under IDEA in Chapter Two.

Curriculum-based measurement (CBM) is designed specifically to supplement information obtained from formal assessments by sampling a student's understanding of the classroom curriculum (L. S. Fuchs & D. Fuchs, 1998). CBM may include having a student read short passages from books in the district language arts or English curriculum and answer comprehension questions. By comparing the student's reading rate (i.e., correct words read per minute) and comprehension to a sample of other students in the classroom or the district, a determination can be made about the student's learning progress.

Teachers may contribute a portfolio assessment as another type of classroom assessment. A *portfolio* is a purposeful collection of a student's work that demonstrates the quality and progress of the student's learning (Jochum, Curran, & Reetz, 1998). For a student being assessed for learning disabilities, a portfolio might include drafts and final versions of writing assignments, a list of books read, an audiotape of the student reading, samples of assignments and problems solved in mathematics, and some type of student self-evaluation. The intent of a portfolio is to capture a snapshot of the student's performance in the reality of the classroom. It is another way to supplement the information gathered from other assessments (Elliott, Ysseldyke, Thurlow, & Erickson, 1998).

A third form of classroom assessment is observation. To be identified as having a learning disability, federal law requires that the student be observed in the general education classroom, or, for young children, in a school-like environment, such as a preschool. Observation often involves getting a general sense of the student's academic and behavioral functioning in the classroom. It may also include tabulating information of interest—how often the student leaves her seat, how often the student blurts out answers instead of raising her hand, how such behaviors compare to their frequency among other students in the class. The person responsible for completing observations depends on local policies. It could be a special education teacher, but it also could be a school psychologist, counselor, or another professional.

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During the late 1960s and early 1970s, an assessment to determine whether a learning disability existed had to include a statement from a physician because LD was considered a physiologically based disorder.

Eligibility

Once assessment data are gathered, the multidisciplinary team convenes and, using all of the assessment information, decides whether a student meets the eligibility criteria for having a learning disability.

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Criteria for Eligibility

To determine eligibility, these questions are considered (Tomasi & Weinberg, 1999):

1. **Does a significant discrepancy, or gap, exist between the student's intellectual ability and academic achievement?** Although a number of methods exist for making this decision, the most common is to compare the student's scores on an individual intelligence test with the scores on the individual norm-referenced or criterion-referenced achievement measures (Schrag, 2000), supplemented with curriculum-based measures and portfolio information. For example, if a student's measured intellectual ability (i.e., IQ) was one hundred but an equivalent reading score was eighty, a decision might be made that a learning disability exists.

If the intelligence score was ninety and the reading score was eighty-eight, no significant discrepancy—and hence no learning disability—exists. Any other related information (e.g., information from parents or teacher records) can be used in answering this question. Keep in mind, too, that a discrepancy may be found between ability and *any* area of academic achievement, including thinking skills, oral expression, listening comprehension, written expression, basic reading skills, reading comprehension, mathematics calculation, or mathematics reasoning. An alternative type of discrepancy is considered in some states: A significant gap may be found when comparing achievement in any two academic areas (e.g., reading comprehension and mathematical calculation).

DIMENSIONS IN DIVERSITY

Although it is a difficult distinction to make, some students who are English-language learners also have learning disabilities.

2. **Is the discrepancy the result of a disorder in an area of basic psychological processing involved in understanding language?** These processes are included in the definition of learning disabilities that you learned earlier and in the description of student characteristics. They include sensory-motor skills; visual or auditory processing; and cognitive skills, such as attention and memory. As the team looks at all the assessment data it must consider whether such processing problems are present.
3. **Can other possible causes of the discrepancy be eliminated?** The IDEA definition of a learning disability includes the provision that the discrepancy *cannot* be the result of other factors. These include environmental factors, such as an unsatisfactory home or school situation; poor teaching; poverty; or poor school attendance. Similarly, learning disabilities cannot be the result of other disabilities (e.g., mental retardation, vision or hearing disability, behavior disability) or a language difference. This requirement to eliminate possible alternative explanations for a student's learning problems is called *the exclusionary clause*.

If the student's discrepancy is great enough and the other criteria are met, the student is eligible to receive services as having a learning disability. As you read the description of Dillon in the *Specialized Instruction* on the next page, you can check your understanding of the basis on which students are identified as having learning disabilities.

CHECK YOUR LEARNING

What are the criteria that must be met for a student to be eligible for special education services as having a learning disability?

Problems in the Eligibility Criteria

Over the past several years, debates have raged about the definition of learning disabilities, the increasing number of students identified as having these disabilities, and the quality of the instruction they are receiving. Most of these discussions return eventually to the criteria for eligibility and their shortcomings. If you look back to information presented earlier in this chapter, you can easily see illustrations of the concerns. In the section on causes of learning disabilities, you learned that environmental factors can lead to learning disabilities, and yet the eligibility criteria explicitly state that these factors should be eliminated in considering whether a student has a learning disability. As an example, how could poor instruction be eliminated? Also, as students get older, having spent more time in school, the likelihood of discrepancies increases. This explains why many students are not identified as having learning disabilities until third or fourth grade—only after they have fallen significantly behind academically.

One response to these and related criticisms has been a proposal for an entirely new way of thinking about learning disabilities (e.g., Lyon et al., 2001). The alternative model, emphasizing prevention and early intervention, the use of curriculum-based measures, and the elimination of the exclusionary clause in the definition, is explained more fully later in this chapter. Clarifying criteria for eligibility is one of the most fundamental issues currently facing professionals in the field and parents of children with learning disabilities.

Specialized Instruction

Teaching Students with Learning Disabilities

Dillon is a fourth-grade student who was identified as having a learning disability in reading and writing at the end of his third-grade year. Dillon is quiet but hard working and eager to please. He enjoys discussing his new puppies, dirt-bike racing, and his older brother, a middle school student who is identified as gifted. Math is an area of strength for Dillon; in nearly all areas he is achieving at grade level. However, Dillon is reading at a preprimer level. He knows some beginning consonant sounds but often relies on memorizing whole words instead of decoding. Dillon's writing skills are weak. He has difficulty with the physical act of writing, is a poor speller, and struggles to create an entire story even if it is dictated to a paraeducator. When his class is working on a writing assignment, Dillon often makes excuses for leaving the room or sits passively until his teacher prompts him. Dillon spends most of the school day in his general education classroom; he receives forty-five minutes of intensive instruction in a group with four other students four times each week.

Questions

1. If you compare Dillon's characteristics to those described in this chapter, on what basis do you think Dillon is eligible to receive services as LD? What might you expect to see as his IEP goals?
2. If you were going to tutor Dillon, what would your priority be? What additional information would you request from his general education teacher, special education teacher, and parents? What questions might you decide to ask Dillon?

How Do Students with Learning Disabilities Receive Their Education?

Students with learning disabilities are educated in a range of settings. However, strong emphasis is placed on ensuring that these students are held to the same academic expectations as typical learners. Federal law outlines the basic requirements for how all students with disabilities receive their education. Within those guidelines, though, many options exist.

Early Childhood

Young children generally are not diagnosed as having learning disabilities. First, the tools typically used to assess whether a learning disability exists, particularly measures of intelligence and achievement, are not precise enough to reliably make this determination for children of preschool age. Second, because the possibility of misdiagnosis is so high, professionals are reluctant to risk the negative impact on child self-perception and teacher expectations that might occur if the learning disability label is applied in error. Overall, the considerable normal differences in rates of development among young children make formal identification inappropriate; what might appear to be a learning disability could easily turn out to be a developmental difference well within the normal range (Appl, 2000).

Programs for young children with *developmental delays*, the general term you have learned often given when young children receive special services, usually address areas indirectly related to learning disabilities. For example, such programs focus on improving children's gross-motor skills (e.g., hopping) and fine-motor skills (e.g., using scissors or crayons), their expressive language skills (e.g., naming objects,

asking questions to indicate need) and receptive language skills (e.g., following simple directions), attention (e.g., persisting in a task for several minutes), and social skills (e.g., taking turns, playing in a group). Interventions in all of these areas help create a solid foundation for later academic tasks, and students with significant delays in these areas may later be identified as having a learning disability.

Of all the three- to five-year-olds receiving special education services—for any type of disability—more than one-third are educated in general education settings such as kindergarten classrooms (U.S. Department of Education, 2002). In addition, many young children receive services either through Headstart programs, private daycare or preschool programs, special centers designed for young children with special needs, or in their homes. Although not called learning disabilities, some of these youngsters may have this disorder.

Internet Resources

www.ldanatl.org
The website for the Learning Disabilities Association of America contains numerous links and resources for individuals with disabilities and their families, including rights and recent legislation regarding learning disabilities.

Elementary and Secondary School Services

Ninety-nine percent of school-age students with learning disabilities receive their education in typical public school settings (U.S. Department of Education, 2002). As you can see from the information presented in Figure 5.2a, approximately 45 percent of today's students with learning disabilities spend nearly their entire school day in general education settings with their peers. These statistics illustrate the strength of the trend toward inclusive practices introduced in Chapter One. Only a decade ago, fewer than 20 percent of students with disabilities spent this much time in general education settings.

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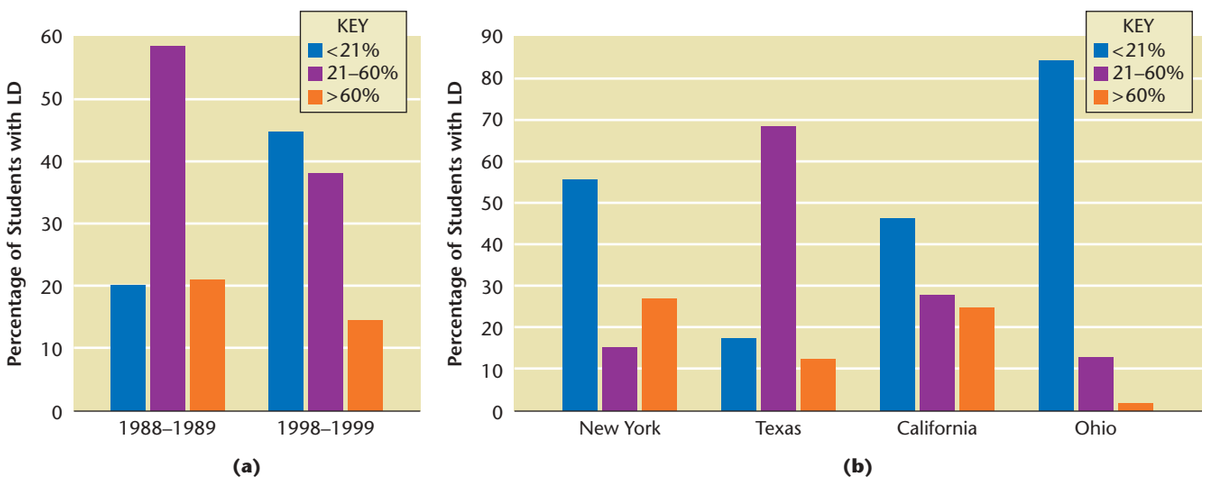
Some students with learning disabilities can experience success and gain self-confidence by participating in the arts—music, drawing or painting, and drama.

A review of data from several states illustrates that the ways students with LD access their services vary greatly from location to location (U.S. Department of Education, 2002). For example, examine the data for New York and Ohio in Figure 5.2b. In New York, more than 27 percent of the students with learning disabilities are educated for the most part in a special education setting. In contrast, in Ohio so few students are educated in this way that you can barely see the column for this type of service on the graph. In Texas, students with learning disabilities typically receive

FIGURE 5.2 • A Statistical Snapshot of Placements for Students with LD, 1988–2000



KEY: Portion of school day spent in a special education setting.

Source: U.S. Department of Education. (1991). *Thirteenth annual report to Congress on the implementation of the Individuals with Disabilities Education Act.* Washington, DC: Author; and U.S. Department of Education. (2002). *Twenty-fourth annual report to Congress on the implementation of the Individuals with Disabilities Education Act.* Washington, DC: Author.

a moderate amount of services in special education settings, with far fewer students mostly in general education or mostly in special education. Looking at the graphic data for California, how do students with disabilities usually receive their services in that state? Why do you think such large discrepancies exist regarding the placement options for students with LD across states?

Knowing the proportion of time students spend in general education versus special education settings does not adequately convey what a student's services might involve. In schools using best practices, a student in general education—whether for a large or small part of the day—would use materials adjusted for his reading level and other special needs and access a computer and other appropriate assistive technology, as illustrated in the *Technology Notes* on page 130. Peer supports, such as peer tutoring or a buddy system, would be in place, and a special educator might co-teach in the classroom for part of the day (Friend & Cook, 2003; Vaughn, Elbaum, Schumm, & Hughes, 1998). In the resource setting (the usual arrangement when students leave the classroom for part of the day), the student would receive intense, individually designed, and closely monitored instruction in any academic area affected by the learning disability. A student who is away from the general education classroom for more than 60 percent of school time is likely to be in a self-contained program in which most or all core academic instruction is delivered by a special education teacher. However, students in such settings often join general education classmates for some instruction, as well as for related arts or electives such as art, music, and technology. In middle and high school settings, students might take exploratory classes, electives, or study skills training with other students. Regardless of placement, general education and special education teachers often need to plan together so that they can provide the supports the student needs. Some tips on this shared planning are offered in the *Collaboration in Action* on page 131.

DIMENSIONS IN DIVERSITY

When preparing to teach language arts to students from language minorities, you first should take into account their oral language skills, knowledge about print, background knowledge, and sense of story (Ruiz, 1991).

Inclusive Practices

As you know, decisions about where students receive their education are determined on the IDEA principle of least restrictive environment (LRE) and the specific needs identified in their IEPs. Within this context, the issue of whether inclusive practices are the best educational approach for students with learning disabilities has been debated for many years (e.g., Carlberg & Kavale, 1980; Council for Learning Disabilities, 1993; Kavale & Forness, 2000; Klingner, Vaughn, Hughes, Schumm, & Elbaum, 1998; Marston, 1997). In the early twenty-first century, it appears that fundamental questions about whether students with learning disabilities should receive at least some services with their peers are largely answered—data on the provision of special education to students with learning disabilities show a definite trend toward increased time spent in general education (McLeskey, Henry, & Axelrod, 1999).

Several serious issues remain to be addressed, however. It is important to remember the premise of this book—that inclusion is about how the adults and students in any particular school think about teaching and learning for all the students who attend school there. Being inclusive does not mean that students never leave the general education setting. Instead, it means that consideration is given to how needs can be met within the classroom context before resorting to instruction in a separate setting. If the latter is considered in the student's best interest, it is provided for as long as it is warranted. Within that framework, professionals in the field now are thinking about the outcomes for students who receive an inclusive education versus those receiving more traditional services. The data are mixed.

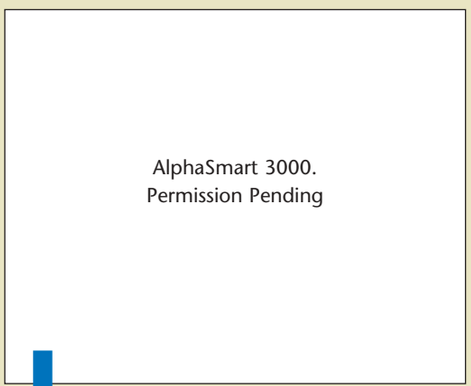
For example, Waldron and McLeskey (1998) found that an inclusive elementary program had a positive effect on students' academic and social outcomes. Ritter, Michel, and Irby (1999) reported that parents and teachers of students with learning disabilities in an inclusive program reported higher student self-confidence, higher expectations, and improved academic progress. Rea, McLaughlin, and Walther-Thomas (2002) reported similar results for students in middle schools. They found

TECHNOLOGY NOTES

Tools for Students with Learning Disabilities

Current technology provides many tools to help students with learning disabilities to take in information, organize their thinking, and demonstrate their learning. Here are three excellent examples:

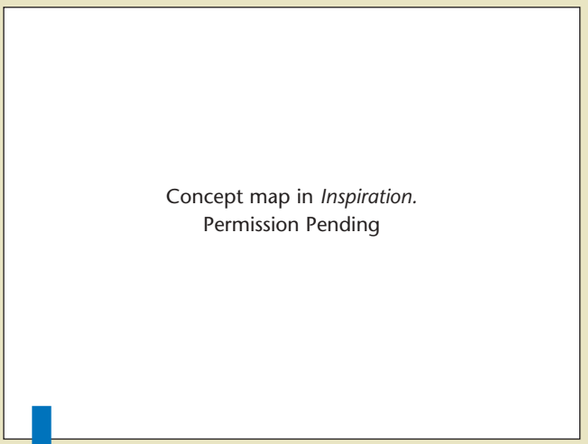
AlphaSmart is a self-contained unit that enables students to enter and edit text and then send it to any computer for formatting or to a printer. Its rugged construction means it can survive the occasional fall from a student desk, and its simplicity eliminates the complexities and distractions of a computer. The units are operated by battery, so no wires are involved. They are compatible with both Macintosh and PC computers. Students who may be reluctant to compose by handwriting often can succeed using this widely available technology, particularly because information from one file can be pasted into another.



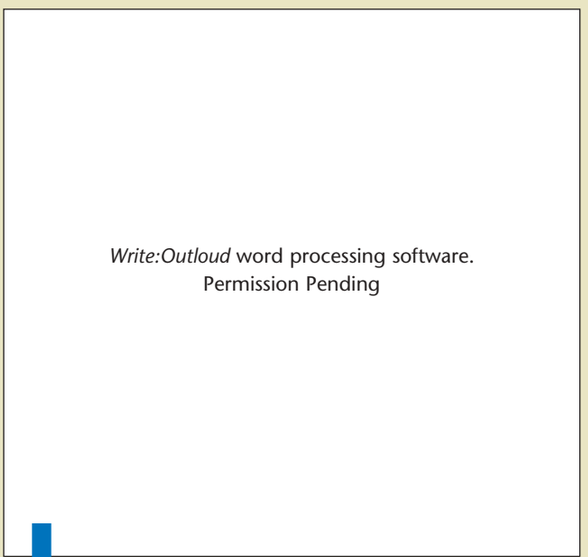
Inspiration is a computer software package that provides a tool for students to create webs or concept maps that enable them to see a visual organization of information they are learning. It also can be an integral part of brainstorming ideas for a project or for prewriting activities. Versions of this program exist for younger or older students.

Write:OutLoud is a word processing software tool designed for students who experience difficulties writing. As the student types, it can say each letter, word, or sentence, thus providing constant feedback about what is being written. The program also has a talking spell checker. It can read information to the student that has been accessed from the Internet or another source, so it can be used to assist poor readers in preparing reports.

Of course, any technology can only be as good as the knowledge base of the professionals teaching students how to use it. Technology specialists are sometimes used in school districts to help teachers learn how to use technology most effectively with their students with LD and other disabilities. As students with LD spend more and more time in general education settings, technology is becoming more and more integral to their education.



Concept map created by high school students



Source: Adapted from Quenneville, J. (2001). Tech tools for students with learning disabilities: Infusion into inclusive classrooms. *Preventing School Failure, 45,* 167–170. Reprinted with permission of the Helen Dwight Reid Educational Foundation. Published by Heldref Publications, 1319 Eighteenth St., NW, Washington, DC 20036-1802. Copyright © 2001.

Collaboration in Action

Making the Most of Shared Planning Time

Although many teachers face the dilemma of having little planning time, a topic addressed in Chapter Four, an additional dilemma occurs when they do not make the best use of time that is available. Here are some time dilemmas for general and special education teachers:

- One teacher or the other is chronically late for a shared planning session. If this occurs occasionally, it is probably simply the nature of being busy professionals. If it happens repeatedly, though, the teachers should discuss whether they are being realistic in their goal of meeting and perhaps whether they should try an alternative approach, such as using e-mail to communicate.
- The teachers begin their shared planning time by discussing topics not related to their students. Some educators find that it helps to have an agenda to guide their conversations. As one experienced teacher commented, "It's not so much that we always follow the agenda exactly, but it reminds us that we have a lot of work to do and we can't afford to spend our planning time chatting."
- The teachers meet and plan, but the general education teacher does not give the special educator the materials (e.g., tests or assignment sheets) that need to be modified for students with LD until the same day they will be used. This is a serious issue because it results in students with LD sometimes not accessing the supports to which they are entitled. In this situation, the special educator should discuss this issue directly with the general education teacher, enlisting the assistance of an administrator if the problem persists and clearly has a negative impact on student learning.
- The teachers spend their planning time on topics that are related to students but unlikely to result in change. Some teachers spend too much time discussing the fact that a student does not bring assignments back to school, that the parents do not attend conferences, or that the family may or may not be moving. Time is precious and should be devoted to conversations about instruction and student support. Unless the teachers can have an impact on an issue, time spent discussing it is time wasted. For example, if the student not bringing assignments back has had this problem since he began school nine years ago, unless the teachers have a new idea for changing this behavior, they might choose instead to focus on how to help the student complete more work in school.

You will find as an educator that you must use every minute of your time carefully. If planning time is managed to be most efficient for the teachers and most effective for the students, the educators will be saving precious minutes for carrying out all of their other duties.

that the students with learning disabilities in inclusive programs earned higher grades, scored at comparable or higher levels on achievement tests, and attended school more days when compared to students with learning disabilities whose services were delivered through a resource program. Witte, Philips, and Kakela (1998) studied outcomes for students with learning disabilities in college. They found that students who had attended high schools with inclusive practices were somewhat more successful than students who had received traditional special education services.

Not all results are positive, however. For example, Scanlon, Deshler, and Schumaker (1996) explored the question of whether middle school content area teachers could instruct students on a learning strategy within the context of the general education classroom. They found mixed results, with some students benefiting and others not. Vaughn and her colleagues (e.g., Klingner et al., 1998; Vaughn, Elbaum, Schumm, & Hughes, 1998; Vaughn & Klingner, 1998) have examined the location in which services were delivered and the academic and social outcomes of inclusion. They found that students have better social outcomes when in-class services, such as co-teaching, are available on a part-time rather than a full-time basis, and they found that both social and academic outcomes vary based on individual student characteristics.

How might you think about inclusive practices for students with learning disabilities? You should keep in mind that most students with these disabilities spend most of their school days with peers in general education settings. The *Inclusion Matters* on page

Research Notes

A report released by a coalition of New York City advocacy groups states that students with disabilities who are included in general education classes are three times more likely to pass standardized tests than those who are separated into special education classrooms—as long as they continue to receive the supports they need (http://specialed.about.com/library/blinclusionworks.htm).

Ultimately, the topic of inclusion for students with learning disabilities highlights the foundational premise of special education: No single approach can ever be best for every student.

133 presents some students' views on this topic. Whether this approach is successful will depend largely on the quality of the instructional practices in those classrooms, including implementing universal design for learning (UDL); the availability of supports, such as assistive technology; and the provision of intense, separate instruction as it is needed (Sapon-Shevin, 2003). Ultimately, the topic of inclusion for students with learning disabilities highlights the foundational premise of special education: No single approach can ever be best for every student.

Transition and Adulthood

The outcomes for students with learning disabilities as they move into adulthood are as varied as the individuals who comprise this group. Some of these young adults successfully complete high school and move into postsecondary options—vocational training, college study, or employment—with confidence and success. However, the majority of young adults experience difficulties (Scanlon & Mellard, 2002). For example, during 1998–1999 approximately 28 percent of students with learning disabilities between the ages of fourteen and twenty-one had dropped out of school (U.S. Department of Education, 2002), a higher rate than the approximately 12 percent for the overall student population (National Center for Education Statistics, 2000). Even for students who graduate, the risk remains high for challenges in adulthood. Murray, Goldstein, Nourse, and Edgar (2000) followed the progress of two cohorts of high school graduates with and without learning disabilities for up to ten years. They found that graduates with learning disabilities were significantly less likely to have participated in any form of postsecondary education, and if they did participate, it was more likely to have been in a training school or vocational program than in a college or university. Others have found that adults with learning disabilities are more likely to be employed in part-time jobs, to have lower occupational status, and to earn lower wages (Collett-Klingenberg, 1998; Reder & Vogel, 1997).

Transition Planning

Why do many students with learning disabilities who are acknowledged to have at least average intelligence continue to have various difficulties as they become adults? Consider the traits and skills needed to go to college or to obtain and keep a job. These include an ability to work independently and to seek assistance as needed; to be organized; to focus attention for long periods of time; to listen, speak, read, write, and compute effectively and efficiently; to problem solve; and to handle social situations with competence. These are the precise areas in which students with learning disabilities may be deficient. In addition, because these students may demonstrate a slower rate of career maturity, poor ability to advocate for themselves, and poor self-esteem, they may have unrealistic job expectations in terms of how to juxtapose their strengths and weaknesses with vocational choices (Cummings, Maddux, & Casey, 2000). Unless professionals, parents, and students work diligently to compensate for these possible deficiencies, a positive outcome is unlikely (Rojewski, 1999).

Since transition planning was added to federal special education law in 1990, increased attention has been paid to preparing students with learning disabilities for

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Secondary students with learning disabilities should explore the options for support available to them through colleges and universities. These supports are provided through the Americans with Disabilities Act.

INCLUSION MATTERS

Students' Perspectives on Instructional Practices in Inclusive Classrooms

One of the most challenging barriers to successful inclusive practices for students with learning disabilities is the availability of appropriate instructional procedures and materials in the general education classroom. Several educators have questioned whether it is possible to provide this group of students with the intensive instruction necessary for them to succeed.

An alternative way of considering inclusion for students with LD involves asking the students themselves about their experiences, and a number of authors have done just that. Klingner and Vaughn (1999) identified twenty studies that investigated students' perceptions of the instruction they received in inclusive settings and summarized the findings. Here are some of their findings:

- Both students with disabilities and those without recognized that some students need special assistance in order to learn.
- Neither student group perceived adaptations made for students with LD as negative.
- Students believed that homework should be the same for everyone.
- Students with LD preferred to engage in the teaching and learning process in the same way their peers do, reading the same books, completing the same assignments, and so on.
- Students without LD agreed that uniformity in instruction and learning tasks is best, even though they acknowledged that change may be needed so that everyone can learn. In fact, in one study 89 percent of intermediate students preferred a teacher who made adaptations for students as needed.
- All students preferred working in pairs or small groups instead of alone or in a large group. However, some differences occurred across age levels in terms of preferences for the students comprising groups, with middle school students in particular preferring homogeneous groups.
- Students with LD were more likely to believe that modifying grades or grading procedures is appropriate. Students without LD generally viewed this practice as unfair.
- Both student groups found it helpful when teachers giving assignments provided clear directions and provided examples, offered assistance, clarified the assignment's purpose and benefits, and both set criteria and gave feedback.

> Although inclusive practices should not be weighed exclusively on the basis of children's perceptions, students at all grade levels have definite opinions about classroom instructional practices.

- Both student groups preferred classrooms in which they were engaged in active lessons instead of being asked to read and answer questions. Students disliked an excessive amount of time being spent on classroom management.
- Students agreed that having two teachers in the classroom (as occurs during co-teaching) was positive because it made more help available, and available more quickly.

Although inclusive practices should not be weighed exclusively on the basis of children's perceptions, this set of studies indicates that students at all grade levels have definite opinions about classroom instructional practices. Those perceptions can be helpful as professionals and parents make decisions about creating supportive learning environments for all students.

Source: Adapted from Klingner, J. K., & Vaughn, S. (1999). Students' perceptions of instruction in inclusion classrooms: Implications for students with learning disabilities. *Exceptional Children, 66,* 23–37.

life after completion of high school. As you know, transition plans include a statement of needs beginning at age fourteen, updated annually and pertaining to the student's course of study; a specific plan for students beginning at age sixteen; and an explanation to the student of his or her rights. However, the quality of transition plans and services is still not fully established. Hitchings and his colleagues (Hitchings, Luzzo, Ristow, Horvath, Retish, & Tanners, 2001) studied students with learning disabilities attending college. Of the students who had received special education services during

As a student prepares to complete high school, a team of professionals assists him to make detailed plans for his future as a college student.
Photo by Michael Newman/PhotoEdit

their elementary or secondary school years, only one could recall participating in a meeting specifically to plan transition. Many of the students had difficulty explaining the nature of their disabilities and the impact the disabilities might have on career choice. Other researchers have found that school districts are complying with the mandates of IDEA regarding transition but that they continue to face challenges, such as increasing students' opportunities for vocational exploration (Hasazi, Furney, & Destefano, 1999).

Model Transition Practices

Model practices for transition for students with learning disabilities in one high school were found to include these features (Collett-Klingenberg, 1998):

- inclusion of career awareness and exploration activities beginning in the freshman year and continuing through high school;
- instruction related to skills needed for successful transition, including problem solving, organization, self-advocacy, and communication; and
- transition planning activities for school professionals and community members regarding the next steps that might be needed to improve activities and services.

In addition, students and parents were integrally involved in transition planning, and transition planning teams included community representatives as appropriate. Academics were given priority; however, work experiences were increasingly being incorporated into student plans, and linkages were created between students and their parents and postschool services, such as the Division for Vocational Rehabilitation. Clearly, practices such as these can maximize young adults' success in moving from the child's world of kindergarten through twelfth grade education to the adult world of college or technical training and work.

Self-Advocacy

One other topic needs to be considered in a discussion of students with learning disabilities and transition: **self-advocacy.** First, students need to be willing to identify themselves as having a disability. Some are reluctant to do so on college applications because they fear it will affect their admission status; others have been advised by

school counselors to drop their learning disability designation (Hitchings et al., 2001). Second, students need to research and access the supports available to them from the college or university campus office designed to provide such assistance (Lock & Layton, 2001). These supports might include tutors, notetakers, or audiotaped textbooks. Finally, students need to be confident enough to articulate their needs to professors and negotiate accommodations, such as extended time for tests, so that they can compensate for their learning disabilities. Unless students learn and use strong self-advocacy skills, they are likely to drop out of college or to remain underemployed or unemployed (Field, Sarver, & Shaw, 2003; Vogel & Reder, 1998). If they have these skills, they are likely to complete college and enter the workforce much like other young adults (Madaus, Foley, McGuire, & Ruban, 2001).

DIMENSIONS IN DIVERSITY

Using data from reports to Congress on IDEA, the Advocacy Institute estimates that dropout rates among students with learning disabilities vary by race: 18.8 percent for Asian students, 26.9 percent for white students, 32.3 percent for Hispanic students, 33.7 percent for African American students, and 44 percent for Native American students (www.advocacyinstitute.org/resources/LD_Review02.pdf).

What Are Best Educational Practices for Students with Learning Disabilities?

For more than two decades, professionals have been investigating which techniques and methods are most effective for addressing the academic, cognitive, social, and behavioral needs of students with learning disabilities. A wealth of information now is available to guide teachers' practices (Vaughn & Linan-Thompson, 2003). For example, several researchers have used a technique called meta-analysis to gather the results of many intervention studies covering many years (e.g., Forness, 2001; Swanson, 1999; Swanson & Hoskyn, 1998). These "studies of studies" strongly indicate that two methods, used in combination, are most effective for most students, regardless of age or specific type of learning disability: (1) direct instruction (DI); and (2) strategy instruction (SI).

Direct Instruction

One method for effectively instructing students with learning disabilities is **direct instruction.** This approach was first explored in the 1960s; it was refined during the 1970s, and it has been guiding the practices of teachers who work with students with learning disabilities ever since. Direct instruction is a comprehensive, teacher-led approach that emphasizes maximizing not only the quantity of instruction students receive but also the quality (Stein, Carnine, & Dixon, 1998). It includes clear demonstrations of new information in small segments, practice that is teacher guided, and immediate feedback to students on their work (Henley, Ramsey, & Algozzine, 2001). It is based on these guiding principles:

1. Present lessons in a well-organized, sequenced manner.
2. Begin lessons with a short review of previously learned skills necessary to begin the lesson.
3. Begin lessons with a short statement of goals. Provide clear, concise explanations and illustrations of what is to be learned.
4. Present new material in small steps with practice and demonstrations at each step. Provide initial guidance through practice activities.
5. Provide students with frequent opportunities to practice and generalize skills.
6. Ask questions to check students' understanding, and obtain responses from everyone. (Mather & Goldstein, 2001, p. 146)

Many books and other materials are available to outline the specific steps for preparing and delivering lessons using direct instruction (e.g., Carnine, Silbert, & Kameenui, 1997; Kameenui & Simmons, 1997). The *Specialized Instruction* on page 136 illustrates this method in a sample lesson plan.

CHECK YOUR LEARNING

How do the characteristics of direct instruction address the learning characteristics of students with learning disabilities?

Specialized Instruction

Using Direct Instruction

Direct instruction (DI) is one of the most recommended approaches for teaching students with learning disabilities. Here is a sample lesson plan based on DI principles:

Title of Lesson: Contractions (e.g., *he's, she's, it's, that's*)

Classroom Management: (1–2 minutes)

Grading Criteria: 15 percent reading sentences correctly, 35 percent generation of new sentences with learned contractions, 25 percent completed worksheet, and 25 percent slates writing activity.

Contingency: If the entire class's criterion level performance is at or better than 85 percent correct, students qualify for extra slate time (i.e., free choice to write or draw on their slates).

Specific Learning Outcomes: (1–2 minutes)

"Today, we are going to learn about contractions. You will learn to read a contraction alone and in a sentence. You will also learn to correctly write a contraction when given two words, and use the newly learned contraction in a sentence."

Anticipatory Set: (3 minutes)

Focus Statement. "Most often when we speak, we shorten a word or phrase by omitting one or more sounds. Listen to this sentence, 'It is raining.' Now listen again as I omit a sound, 'It's raining.' What two words did I shorten by omitting a sound?" (Students respond.) (Repeat with other examples such as "He's going to the store" and "She's at the mall.")

"When we shorten a word or phrase by omitting one or more sounds or letters, it is called a contraction."

Relevance of the Lesson. "It is important to learn how to read contractions because they are often used in storybooks, newspapers, magazines, and most material that you read. Also, you need to learn how to write contractions to use in your own writing."

Transfer of Past Learning. "We learn many new words in reading. A contraction is a special word because it is written differently than a regular word. Learning how to read and write contractions will make you a better reader and writer."

New Vocabulary Terms: (1–2 minutes)

- Contraction—shortening of a word or phrase by omitting one or more letters or sounds.
- Apostrophe—a mark that takes the place of the missing letter(s) in the contraction; it looks like a comma but is placed at the top of the line.

Teaching (10–12 minutes)

Sequence/Steps	Questions/Examples/Nonexamples
1. Review decoding words in isolation and in sentences: *he, she, it, that, is.* Have students use words in their own sentences.	"What is this word?" "Read this sentence." "Use this word in your own sentence."
2. Define a contraction and an apostrophe.	"When a word or phrase is shortened by omitting one or more letters or sounds, it is called a _____." "What is the name of the visual mark used to take the place of the missing letters?"
3. Present examples and nonexamples of contractions and have students identify them.	Examples: *he's, she's, it's, that's.* Nonexamples: *cat, drum, bell.* "Is this a contraction? Why or why not?"

Strategy Instruction

One of the overall goals for all students' education is independence. Because of students' learning disabilities, achieving academic independence can be particularly difficult. Some students cannot write essays because they do not know how to go about thinking about the components of essays and what content they might place in an

4. Model the sequence of steps for forming contractions Example: *It is* **a.** Write the two words together without a space between them. **b.** Erase the letter *i* in *is* and put an apostrophe in its place. **c.** Read the new word by blending the sounds. Point out that the apostrophe doesn't make a sound. Have students read the word, spell it, and repeat the word again. **d.** Write sentences: It is hot today. It's hot today. Have students read sentences with the teacher. Have students use the contraction in a new sentence. **e.** Repeat steps a–d with other examples (e.g., *he, she, that*) using simple sentences.	"Do these two sentences mean the same thing? How do you know?"
5. Do a discrimination test of irregular words and previously know words. Call on students as a group to read words by randomly pointing to each word several times.	
6. Test individual students on reading contractions.	

Guided and Independent Practice: (5–8 minutes)

1. Students first complete a worksheet with teacher direction and then do similar exercises independently. Students match the contraction with the two words that it is composed of.
2. The teacher provides guided and independent practice in writing the contractions on slates when the two words that make up the contraction are presented on the board.
3. Examples on board: *He is, she is; it is; that is*

Students will correctly write the contractions in newly generated sentences and share sentences with the class.

Closure: (3 minutes)

"Today, we learned about contractions and the apostrophe. We also learned that contractions have the same meaning as the two words that make them up. What is a contraction? What is an apostrophe? What word means the same as *it is*? What two words make up *he's*?"

Source: Jitendra, A. K., & Torgerson-Tubiello, R. (1997). Let's learn contractions! *Teaching Exceptional Children, 29*(4), 16–19.

introduction, body, and conclusion. Others do not comprehend their textbooks because they do not have a plan for processing and remembering the information presented. Yet others struggle to take notes because they cannot decide what information being shared by the teacher is essential or how to organize it. A highly recommended method for instructing students with learning disabilities addresses these types of problems; it is called **strategy instruction.** Strategies are techniques,

For many students with LD, intense, phonologically based interventions have been demonstrated to be effective for improving reading achievement.
Photo by Elizabeth Crews/The Image Works

CHECK YOUR LEARNING

How could you use principles of universal design for learning to incorporate learning stategies into instruction?

principles, or rules that guide students to complete tasks independently (Friend & Bursuck, 2002). Strategies outline steps students can take to accomplish learning tasks and provide some type of memory assistance so that students can easily recall them (often an acronym—see the following *AWARE* strategy). Teachers usually introduce strategies by helping students realize an instructional dilemma (e.g., challenges students encounter with word problems in math) and then explaining why the strategy will help them overcome the learning challenge. Here is an example of a strategy for note taking:

Step 1	**A**rrange to take notes	Arrive early
		Take a seat near the front or center
		Obtain a pen and notebook
		Note the date
Step 2	**W**rite quickly	Indent minor points
		Record some words without vowels
Step 3	**A**pply cues	Attend to accent and organizational verbal cues
		Record cued lecture ideas
		Make checkmarks before cued ideas
Step 4	**R**eview notes as soon as possible	
Step 5	**E**dit notes	Add information you forgot to record
		Add personal details
		Supplement notes with details from readings

Source: Based on Suritsky & Hughes, 1993, cited in Mather & Goldstein, 2001.

Think about the strategy as you might use it yourself. How could it help your own note-taking skills? Can you think of other academic areas in which a strategy might help you as a learner? Now think about students with learning disabilities. How does strategy instruction address some of the characteristics they have? In what areas do you think these students would benefit from strategy instruction? Many strategies have been described in the professional literature (e.g., Deshler et al., 2001; Deshler, Ellis, & Lenz, 1996; Lenz, Ellis, & Scanlon, 1996), but teachers often design their own strategies to meet their students' unique needs. The *Specialized Instruction* on page 140 outlines the steps you should follow if you want to design your own learning strategies.

The strategies may not be appropriate for young students, students who experience extraordinary difficulty learning the steps, or students who cannot apply the strategies consistently. However, they are effective as learning tools for many students with learning disabilities. They have helped countless students to succeed in bypassing their own disabilities and mastering crucial academic content.

What Are the Perspectives of Parents and Families?

Unlike the parents of students with significant sensory, cognitive, or physical disabilities who may learn of their child's disabilities soon after birth, parents of children with learning disabilities often are not aware of their child's special needs until the child is enrolled in school and experiences frustration and failure in academic tasks. Parents may be surprised when they are informed about their child's disability, relieved to hear an explanation for their child's struggles to learn, or concerned about the time lost in finding effective interventions. As Mary, a college-educated professional and the mother of first-grader Guy, told school professionals as they conducted the initial eligibility and IEP meeting:

Parents of children with learning disabilities often are not aware of their child's special needs until the child is enrolled in school and experiences frustration and failure in academic tasks.

> Stop. Wait. You're saying my son has a disability—*a disability.* You've just changed my whole world and how I think about Guy. You can't just say, "He's learning disabled. Let's write a plan for his education." I need to think about this. I need to understand better what this means. It may be routine to you, but he's my son. I can't sit here right now and make decisions. It's his life we're talking about. I wouldn't sign a contract to buy a car without a lot of thought and some careful research. How can you expect me to sign these papers about Guy's life without even knowing what I'm signing? I need to know what this means and what I'm agreeing to before I can sign anything.

Although not all parents can express their sentiments in such an articulate way, it is important to remember that the disability label often affects parents of students with learning disabilities in ways that school professionals cannot completely understand (Lardieri, Blacher, & Swanson, 2000). Many parents will have to redefine their

Specialized Instruction

Developing Your Own Learning Strategies

You can use the guidelines here either to create your own learning strategies or to evaluate ones that are commercially produced. By following these suggestions, you will not always need to depend on commercial publishers for your learning materials. Rather, you can develop learning strategies to fit the students in your class.

1. Identify skill areas that are problematic for most of your students, such as taking multiple-choice tests or writing lecture notes.
2. For each skill area, specify student outcomes, such as scoring at least 10 percent higher on multiple-choice tests or writing down main ideas and details from a lecture.
3. List a set of specific steps students need to follow to reach the identified outcomes. You may want to ask other students who have good test-taking and note-taking skills what they do. Presented here is a sample reading comprehension strategy called **RAP:**
   - **R** *Read* a paragraph.
   - **A** *Ask* yourself what were the main idea and two details.
   - **P** *Put* main idea and details in your own words. (Ellis & Lenz, 1987)
4. Your strategy should contain no more than eight steps. Having more steps makes the strategy difficult to remember.
5. Your steps should be brief; each should begin with a verb that directly relates to the strategy.
6. To help students remember the steps, encase the strategy in a mnemonic device (for example, the acronym RAP for the reading strategy just presented).
7. The strategy should cue students to perform behaviors for thinking (remembering), for doing (reading), and for self-evaluation (surveying or checking their work).
8. A textbook-reading strategy that was developed by teachers (Bartelt, Marchio, & Reynolds, 1994) and that meets the guidelines for developing an effective learning strategy follows:
   - **R** *Review* headings and subheadings.
   - **E** *Examine* boldface words.
   - **A** *Ask,* "What do I expect to learn?"
   - **D** *Do* it—Read!
   - **S** *Summarize* in your own words.

Source: Adapted from Ellis, E., Lenz, K., and Sabornie, E. (1987). Generalization and adaptation of learning strategies to natural environments: Part 2. Research into practice. *Remedial and Special Education, 8*(2), 6–23. In Friend, M., & Bursuck, W. (2002). *Including students with special needs: A practical guide for classroom teachers* (3rd ed., p. 359). Boston: Allyn & Bacon. Copyright © 2002 by Pearson Education. Reprinted by permission of the publisher.

image of who their child is. Especially if a child is identified during middle or high school, some parents may blame school personnel for their child's problems. Other parents may believe that they have failed their child and that they should have been able to prevent the disability. Special education teachers and other school professionals need to be aware that their attitudes toward parents, their communications with them, and their openness to parent and family perspectives can affect greatly the quality of the student's education and support received from home. In fact, one of the most common concerns expressed by parents of students with learning disabilities about school services is the frequency (too little) and focus (negative instead of positive) of communication from teachers and other professionals.

Parents as Partners

Many parents of students with learning disabilities take active roles in their children's education. For example, Burns and Kondrick (1998) documented parents' effectiveness in implementing a behavioral reading program for their children with learning

disabilities. They found that parents enthusiastically carried out the program and that the children significantly improved in their reading achievement. Polloway, Bursuck, and Epstein (2001) and their colleagues conducted a series of studies on homework for students with LD and other disabilities. They found that school–home collaboration can lead to clear expectations, effective communication, and increased student success. Finally, Munk and Bursuck (2001) designed a collaborative approach involving students with learning disabilities, their parents, general education teachers, and special education teachers to create personalized grading plans. They found that the team effort resulted in a greater sense of fairness regarding grading students with learning disabilities and that students reported trying harder with this coordinated effort. These researchers also noted that the grading plans can provide a vehicle for professionals working with parents to prevent poor grades.

Although parent involvement is preferred, sometimes it can be a challenge. Two recent studies focusing on Hispanic families illustrate this point. One study (Hughes, Schumm, & Vaughn, 1999) examined Hispanic parents' perspectives on home reading and writing activities. They found that many parents of Hispanic children with learning disabilities provided books to their children, took them to the library, and read to them. However, some parents reported that they did not receive enough communication from school regarding how to help their children, and others indicated that their own difficulty with the English language constrained their ability to provide assistance. Torres-Burge, Reyes-Wasson, and Brusca-Vega (1999) studied the involvement and treatment of urban Hispanic parents of children with learning disabilities in the entire special education process. They found that Hispanic parents rated their knowledge about IEPs significantly lower than non-Hispanic parents, particularly regarding the severity of their children's disabilities and the types of services received. Although all of the parents reported that special education teachers were sensitive to cultural issues, the Hispanic parents of children with learning disabilities communicated less with special education teachers than non-Hispanic parents, and they were far less likely to report receiving advice on how to work with their children at home.

CONNECTIONS

The unique perspectives of families from minority groups were raised in Chapter Three and apply here as well.

Siblings

Some studies of the siblings of students with learning disabilities have indicated that they experience a greater degree of life stress than siblings of children without disabilities (Smith, 2004). The stress may be caused by having to help the brother or sister with learning disabilities, by having the family priorities and schedule focus on the sibling with the disability, or by feeling pressure to succeed academically in light of the sibling's learning challenges (Smith, 1998). However, not all studies of siblings report negative results (e.g., Dyson, 2003). For example, Lardieri, Blacher, and Swanson (2000) interviewed families with children with learning disabilities and families with children without this special need. Overall the siblings' behaviors and interactions were very similar. The children with siblings with learning disabilities reported that they loved their siblings and felt that their own needs (e.g., time with parents) were met.

What Trends and Issues Are Affecting the Field of LD?

Controversy has characterized the field of learning disabilities almost since its inception, and that trend continues today. In this era in which spending on education is being carefully scrutinized and accountability for education outcomes is higher than

ever, it is not surprising that many aspects of learning disabilities are being examined under a critical lens (e.g., Kavale & Forness, 1998).

Identification Procedures for LD

The field of learning disabilities has been described by some as confusing and chaotic (e.g., Siegel, 1999). Lyon and his colleagues (Lyon et al., 2001) have referred to current practices for determining whether students should be identified as learning disabled as a "wait to fail" model because students must progress far enough in school and experience significant academic frustration to even be considered as having learning disabilities. They likewise speculate that practitioners sometimes ignore the diagnostic standards for learning disabilities (e.g., the required discrepancy or the exclusionary clause) in order to provide services to students without having to use more potentially objectionable labels such as *mental retardation* and in order to provide help to those students sometimes referred to as *slow learners,* who exhibit overall marginal achievement. They also have found that even when a discrepancy approach is used to identify students with learning disabilities, it has little validity (Stuebing, Fletcher, LeDoux, Lyon, Shaywitz, & Shaywitz, 2002).

What is recommended is an alternative approach to identifying students as having learning disabilities, one that blends knowledge gained from research with the realities of students in today's schools. It includes these four components:

1. Instead of defining learning disabilities by describing what they are not in an exclusionary clause, provide precise characteristics that identify students as having the disorder in the core academic areas.
2. Replace the ability–achievement discrepancy criteria with a simple direct assessment of the extent of a student's underachievement. This would solve the problem of identifying young children because it would eliminate the need to wait for a discrepancy to emerge.
3. Eliminate the provision that inadequate instruction, emotional disturbance, and cultural or social issues make a student ineligible for services as learning disabled. If learning problems are extreme, the reasons for them are not as important as providing assistance to the student.
4. Require measures of a student's achievement on well-designed early instructional interventions (especially in prekindergarten through second grade) as part of the assessment process. This change would address contemporary concerns about the quality of instruction students at risk are receiving as well as providing clear documentation of efforts to address student learning problems (Lyon et al., 2001).

If you compare these proposals to current definitions and identification practices, you should see that the latter approach would create radical changes in the entire conceptualization of learning disabilities. It would, in essence, redefine learning disabilities as occurring whenever a student experiences an *inadequate response to instruction* (Vaughn & Fuchs, 2003; Vaughn, Linan-Thompson, & Hickman, 2003). How do you think such changes would affect the field of learning disabilities? How might it affect which students are considered learning disabled? What might be the advantages and disadvantages of making these changes? One advantage would be to place more focus on addressing problems as soon as they are detected. One concern that has been raised is the amount of preparation educators would need to understand and implement this approach. Another concern is the amount of time using this approach would take.

Internet Resources

www.ldresources.com
The LD Resources website contains published resources and materials for individuals with learning disabilities.

High School and College Students and Learning Disabilities

As the field of learning disabilities has matured and services have improved for older students, more and more students are successfully completing high school and continuing on to college (Shapiro & Rich, 1999; Wolinsky & Whelan, 1999). In fact, students with learning disabilities make up the largest single group of students with disabilities at the college level (Henderson, 2001; Scott, McGuire, & Shaw, 2003). However, a challenge accompanies what seems like a strongly positive trend. Increasingly, students are being identified for the first time as having learning disabilities during the high school years (U.S. Department of Education, 2001). Advocates applaud this as evidence that a deeper understanding exists among professionals about what learning disabilities are and how the increased demands in high school for student independence and responsibility expose previously unidentified learning disabilities. Critics claim that many students thus identified in high school are hoping to take advantage of the testing accommodations they may be able to obtain to improve their scores on SATs and other college entrance exams and to parlay a disability label into special treatment while in college (Siegel, 1999). The rapid growth in students identifying themselves as having learning disabilities late in their school careers has led colleges and universities to outline more carefully the documentation necessary to be eligible for services and the types of supports that can be provided (Shapiro & Rich, 1999).

Research Notes

Although some researchers have found a link between learning disabilities and juvenile delinquency, others dispute whether students with LD are more likely to become juvenile delinquents (Malmgren, Abbott, & Hawkins, 1999).

The rapid growth in students identifying themselves as having learning disabilities late in their school careers has led colleges and universities to outline more carefully the documentation necessary to be eligible for services and the types of supports that can be provided.

SUMMARY

The origin of the learning disabilities field can be traced to nineteenth-century research on the brain, but recognition of learning disabilities as a disability category occurred in the 1960s. The definition that guides most school practices was included in the first federal special education law in 1975, and it has changed little since; an alternative definition has been proposed by the NJCLD to better take into account the life span character of learning disabilities, the heterogeneity of individuals with the disorder, and the impact of learning disabilities on social interactions. More than 50 percent of all students receiving special education services are identified as having learning disabilities, which may be caused by physiological or environmental factors. Students with learning disabilities may experience problems in cognition (e.g., perception or memory), one or more academic areas, social or emotional functioning, and behavior. Students are assessed for learning disabilities through formal and informal assessments, and eligibility is determined primarily by the presence of a discrepancy between ability and achievement. Most students with learning disabilities receive their services in general education settings with some type of special education assistance. As students near school completion, attention is focused increasingly on helping them make the critical transition to adulthood. Recommended instructional practices for students with learning disabilities include direct instruction, which is a highly structured teacher-led approach for teaching students across academic

areas, and strategy instruction, which includes steps to guide students so that they can achieve independence for completing common academic tasks. Parents of students with learning disabilities often are highly involved in their children's education, but sometimes barriers to participation occur. Two important issues currently facing the learning disabilities field are (1) how students are identified as having this disability and (2) whether high school and college students should be identified as having learning disabilities for the first time.

KEY TERMS AND CONCEPTS

Attention deficit–hyperactivity disorder (ADHD), p. 122
Curriculum-based measurement (CBM), p. 125
Direct instruction, p. 135
Dyscalculia, p. 109
Dysgraphia, p. 109
Dyslexia, p. 109
Extrinsic motivation, p. 121
Intrinsic motivation, p. 121
Learned helplessness, p. 121
Learning disabilities, p. 106
Long-term memory, p. 115
Metacognition, p. 115
Minimal brain dysfunction, p. 105
National Joint Committee on Learning Disabilities (NJCLD), p. 108
Nonverbal learning disability, p. 121
Psychological processes, p. 106
Self-advocacy, p. 134
Short-term memory, p. 115
Strategy instruction, p. 137

REVIEW, DISCUSS, APPLY

1. Think about the development of the field of learning disabilities. Why do you think so many controversies have occurred? (Learning Objective 1)
2. What are the critical differences between the federal and NJCLD definitions? How might school practices change if the latter definition were adopted in federal law? (Learning Objective 2)
3. Does knowing a cause for learning disabilities influence how to help students overcome them? If not, why are researchers so interested in determining the causes of learning disabilities? (Learning Objective 1)
4. Interview the parent of a student with learning disabilities. What characteristics are mentioned by the parent? How do the child's characteristics affect school learning? Activities at home? (Learning Objective 2)
5. Give an example of a situation in which you did not feel motivated. How did you overcome the feeling? What ideas do you have to help students with learning disabilities be motivated to complete school tasks? How can this be accomplished in a positive way? (Learning Objective 2)
6. Why is it helpful to have both formal and informal assessment data for deciding whether a student is eligible to receive services for a learning disability? (Learning Objective 3)
7. If you are currently participating in a practicum or field experience, compare with classmates the ways in which students with learning disabilities receive their services. Are schools inclusive? How common are resource programs? Do any students receive most of their core instruction in a special education classroom? (Learning Objective 4)
8. Do you know someone with a learning disability who is attending college? What is this person's perspective on the quality of supports and services available to students with learning disabilities as they leave high school for college? (Learning Objective 4)
9. Although direct instruction approaches have been demonstrated to be effective for students with learning disabilities, not all professionals believe they are the best way for students to learn. Ask several other professionals about their beliefs. How can you reconcile differences among them? (Learning Objective 5)
10. What is your responsibility in working with parents of students with learning disabilities? How would you respond if a parent expressed concern that her child was not learning in the way expected? (Learning Objective 6)
11. Scan recent issues of newspapers and magazines. What topics related to learning disabilities appear in the popular press? Do these issues help the public's understanding of LD? Hinder it? How? (Learning Objective 7)

WORKING THE STANDARDS

The *Council for Exceptional Children (CEC) Special Education Content Standards* consist of ten narrative standards that must be mastered by all beginning special educators. These standards parallel the ten *Interstate New Teacher Assessment and Support Consortium (INTASC)* principles that must be mastered by all beginning general educators. Together these standards detail the knowledge and skills that all educators should possess in order to be effective teachers of students with disabilities.

The standards and principles noted below relate to the students profiled at the beginning of this chapter: Brandon, Danielle, and Derek. The activities that follow demonstrate how these standards and principles, along with other concepts you have learned about in this chapter, connect to the everyday activities of all teachers. As you apply what you learn in this course by completing the questions or activities for each case, you will be demonstrating your ability to meet these standards.

To view the complete CEC Special Education Content Standards, please go to **www.cec.sped.org/ps/perf_based_stds/standards.html.**

For INTASC principles, please go to **www.ccsso.org/content/pdfs/SpedStds.pdf.**

For a complete correlation of chapter content to the CEC standards and INTASC principles, please go to **www.ablongman.com/friendintro.**

- **CEC Content Standard #4** states that special educators possess a repertoire of evidence-based strategies to help students with disabilities increase their self-awareness, self-management, self-control, self-reliance, and self-esteem.
- **INTASC Principle #4** states that teachers use a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills. In meeting this standard, teachers would support the use of assistive and instructional technologies to promote learning and independence of students with disabilities (4.08).
- **CEC Content Standard #7** states that teachers of students with disabilities are able to develop long-range individualized instructional plans and individualized transition plans.
- **INTASC Principle #1** (1.09) and **#7** (7.07) tell special education teachers to know about services, procedures, and policies that support transition from secondary to postsecondary and work settings.
- **CEC Content Standard #10** states that special educators are viewed as specialists by a myriad of people who actively seek their collaboration to effectively include and teach individuals with ELN (exceptional learning needs). This collaboration ensures that the needs of individuals with ELN are addressed throughout schooling.
- **INTASC Principle #10** states that special education teachers provide leadership that enables teams to accomplish their purposes (10.05). It also states that all general and special education teachers share instructional responsibility for students with disabilities and work to develop well-functioning collaborative teaching relationships (10.01).

Back to the Cases

Brandon

As the special educator on the IEP team making the decision about Brandon's placement in the intense phonics instruction program, you will be required to give your professional opinion. See CEC Standard #10 and INTASC Principle #10 (10.01 & 10.05). Prepare a written statement to share with the team that presents the pros and cons of sending Brandon to another classroom daily for this special instruction. End the statement with a rationale for your decision.

Danielle

You will be working with Danielle during her advisory period. Prior to meeting with her for the first time, you will need to find strategies (see CEC Standard #4) and assistive technologies (see INTASC Principle #4.08) to help Danielle become more organized so that she can achieve independence and academic success in middle and high school. Based on information provided in Danielle's folder, prepare a summary of strategies and technologies you think are appropriate to meet Danielle's organizational challenges, and include the rationale for your choices.

Derek

Derek, like many students with or without learning disabilities, is apprehensive about his choices for the future. He only has a few months remaining in high school, but there is time to enhance his possibilities of a successful transition to post-secondary education (see CEC Standard #7). You and Derek have outlined a plan for his last semester of high school. Now you must write a letter to his general education teachers and family stating what Derek needs and wants from each of them as well as your own role. See INTASC Principle #1 (1.09) and #7 (7.07). Be sure to include the following points:

- What might his general education teachers do to ensure that he will be able to complete college-level academic work?
- What should Derek's special education teachers be doing to support his transition to college?
- How should Derek's family be involved in this process?