Chapter 4

Learner Differences and Learning Needs

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Stuffed in your (undersized) mailbox in the school office is a large, official-looking envelope. There seems to be one in almost every box. Inside are computer printouts with the results of the fall testing, including scores on a group test of intelligence for all the 7th- and 8th-grade students in your advisory section. Also in your box are notes from two parents who must have already heard that the test results are in. They want to meet with you to see their child's scores, and especially, as one parent put it, "To find out how smart Jason really is." You look at the printouts and at the notes, wondering what you should do with the results.

To answer the questions above, you need an understanding of individual differences. So far, we have talked little about individuals. We have discussed principles of development that apply to everyone—stages, processes, conflicts, and tasks. Our development as human beings is similar in many ways, but not in every way. Even among members of the same family, there are marked contrasts in appearance, interests, abilities, and temperament, and these differences have important implications for teaching. In addition, recent changes in federal legislation mean that you probably will have at least one student with special needs in your class, whatever grade you teach. We explore both prevalent and less frequently occurring learning problems that students may have. As we discuss each problem area, we will consider how a teacher might recognize problems, seek help, and plan instruction. By the time you have completed this chapter, you should be able to answer these questions:

- What are the potential problems in categorizing and labeling students?
- What is your personal concept of intelligence?
Language and Labeling

Every child is a distinctive collection of talents, abilities, and limitations. In that sense, they all are “exceptional.” But some students are called exceptional students because they have learning disabilities, communication disorders, emotional or behavioral disorders, mental retardation, physical disabilities, impaired vision or difficulties hearing, autism, traumatic brain injury, or special abilities and talents. Even though we will use these terms throughout the chapter, a caution is in order: Labeling students is a controversial issue.

A label does not tell which methods to use with individual students. For example, few specific “treatments” automatically follow from a “diagnosis” of mental retardation; many different teaching strategies and materials are appropriate. Further, the labels can become self-fulfilling prophecies. Everyone—teachers, parents, classmates, and even the students themselves—may see a label as a stigma that cannot be changed. Finally, labels are mistaken for explanations, as in, “Mitchell gets into fights because he has a behavior disorder.” “How do you know he has a behavior disorder?” “Because he gets into fights.”

On the other hand, some educators argue that for younger students, at least, being labeled as “special” protects the child. For example, if classmates know a student has mental retardation (sometimes called a cognitive disability), they will be more willing to accept his or her behaviors. Of course, labels still open doors to some special programs, useful information, special technology and equipment, or financial assistance. Labels probably both stigmatize and help students (Heward & Orlansky, 1992; Keogh & MacMillan, 1996).

Person-First Language. This caution about labeling also applies to many of the common descriptions heard in schools every day. Today many people object to labels such as “mentally retarded student” or “at-risk student” because describing a complex person with one or two words implies that the condition labeled is the most important aspect of the person. Actually, the individual has many abilities, and to focus on the disability is to misrepresent the individual. An alternative is “person-first” language or speaking of “students with mental retardation” or “students placed at risk.” Here, the emphasis is on the students first, not on the special challenges they face. Other examples suggested by Meece (2002, p. 317) are:

Exceptional students. Students who have abilities or problems so significant that they require special education or other services to reach their potential.
A student with a learning disability  NOT A learning disabled student
Students receiving special education NOT Special education students
A person with epilepsy NOT An epileptic
A child with a physical disability NOT A crippled child

Disabilities and Handicaps. One more distinction in language is important. A disability is just what the word implies—an inability to do something specific such as see or walk. A handicap is a disadvantage in certain situations. Some disabilities lead to handicaps, but not in all contexts. For example, being blind (a visual disability) is a handicap if you want to drive a car. But blindness is not a handicap when you are composing music or talking on the telephone. Stephen Hawking, the greatest living physicist, suffers from Lou Gehrig’s disease and no longer can walk or talk. He once said that he is lucky that he became a theoretical physicist "because it is all in the mind. So my disability has not been a serious handicap." It is important that we do not create handicaps for people by the way we react to their disabilities. Some educators have suggested that we drop the word “handicap” altogether because the source of the word is demeaning. Handicap came from the phrase “cap-in-hand,” used to describe people with disabilities who once were forced to beg just to survive (Hardman, Drew, & Egan, 1999).

Check Yourself
What are the advantages of and problems with labels?

What is person-first language?

Distinguish between a disability and a handicap.

In the next section we consider a concept that has provided the basis for many labels—intelligence.

Individual Differences in Intelligence

Because the concept of intelligence is so important in education, so controversial, and so often misunderstood, we will spend quite a few pages discussing it. Let us begin with a basic question.

What Does Intelligence Mean?

STOP
THINK
WRITE

Who was the most intelligent person in your high school? Write down a name and the first 4 or 5 words that come to mind when you see that person in your mind’s eye. What made you pick this individual?

The idea that people vary in what we call intelligence has been with us for a long time. Plato discussed similar variations over 2,000 years ago. Most early theories about the nature of intelligence involved one or more of the following three themes: (1) the capacity to learn; (2) the total knowledge a person has acquired; and (3) the ability to adapt successfully to new situations and to the environment in general.

In the past century, there has been considerable controversy over the meaning of intelligence. Thirteen psychologists in 1921 and 24 psychologists in 1986 met to discuss intelligence. Both times, every psychologist had a different view about the nature of intelligence (Neisser et al., 1996; Sternberg & Detterman, 1986). Both times, about half of the experts mentioned higher-level thinking processes such as abstract reasoning and problem solving as important aspects of intelligence. The 1986 definitions added metacognition and executive processes (monitoring your own thinking), the interaction of knowledge with mental processes, and the cultural context—what

Disability The inability to do something specific such as walk or hear.
Handicap A disadvantage in a particular situation, sometimes caused by a disability.
Intelligence Ability or abilities to acquire and use knowledge for solving problems and adapting to the world.
is valued by the culture—as elements of intelligence. But in 1921 and again in 1986, the psychologists disagreed about the structure of intelligence—whether it is a single ability or many separate abilities (Gustafson & Undheim, 1996; Louis, Subotnik, Bredland, & Lewis, 2000; Sattler, 2001; Sternberg & Kaufman, 1998).

**Intelligence: One Ability or Many?** Some theorists believe intelligence is a basic ability that affects performance on all cognitively oriented tasks from computing mathematical problems to writing poetry or solving riddles. Evidence for this position comes from study after study finding moderate to high positive correlations among all the different tests that are designed to measure separate intellectual abilities (Carroll, 1993; McNemar, 1964). What could explain these results? Charles Spearman (1927) suggested there is one mental attribute, which he called $g$ or general intelligence, that is used to perform any mental test, but that each test also requires some specific abilities in addition to $g$. For example, memory for a series of numbers probably involves both $g$ and some specific ability for immediate recall of what is heard. Spearman assumed that individuals vary in both general intelligence and specific abilities, and that together these factors determine performance on mental tasks.

Another view that has stood the test of time is Raymond Cattell and John Horn's theory of fluid and crystallized intelligence (Cattell, 1963; Horn, 1998). **Fluid intelligence** is mental efficiency that is essentially culture-free and nonverbal. This aspect of intelligence increases until adolescence because it is grounded in brain development, then declines gradually with age. (Every year it gets harder for me to write that sentence!) Fluid intelligence is sensitive to injuries. In contrast, **crystallized intelligence**, the ability to apply culturally approved problem-solving methods, can increase throughout the life span because it includes the learned skills and knowledge such as vocabulary, facts, and how to hail a cab, make a quilt, or study in college. By investing fluid intelligence in solving problems, we develop our crystallized intelligence, but many tasks in life such as mathematical reasoning draw on both fluid and crystallized intelligence (Hunt, 2000; Sattler, 2001).

The most widely accepted view today is that intelligence, like self-concept, has many facets and is a hierarchy of abilities, with general ability at the top and more specific abilities at lower levels of the hierarchy (Sternberg, 2000). Earl Hunt summarized the current thinking about the structure of intelligence this way:

After almost a century of such research, that structure is pretty well-established. There is considerable agreement for the bottom two levels of a three-tiered lattice model of intelligence. At the bottom are elementary information-processing actions, and immediately above them are eight or so secondary abilities. These are more broadly defined capabilities, such as holding and accessing information in short- and long-term memory and, most importantly, the trio of "intellectual" abilities: crystallized intelligence . . . , fluid intelligence . . . , and visual-spatial reasoning ability [which] may be just the most visible of several abilities to manipulate information coded in a particular sensory modality. (Hunt, 2000, p. 123)

Look at Figure 4.1 to see an example of this three-level view of intelligence. John Carroll (1997) identifies one general ability, a few broad abilities (such as fluid and crystallized abilities, learning and memory, visual and auditory perception, processing speed) and at least 70 specific abilities such as language development, memory span, and simple reaction time. General ability may be related to the maturation and functioning of the frontal lobe of the brain, while specific abilities may be connected to other parts of the brain (Byrnes & Fox, 1998).

**Multiple Intelligences.** In spite of the correlations among the various tests of different abilities, some psychologists insist that there are several separate mental abilities (Gardner, 1983; Guilford, 1988). According to Gardner's (1983, 1999) **theory of multiple intelligences**, there are at least eight separate intelligences: linguistic (verbal), musical,
The specific abilities at the third level are just some of the possibilities. Carroll identified over 70 specific abilities.

![Hierarchical Model of Intelligence](image)

**Figure 4.1 An Example of a Hierarchical Model of Intelligence**

Spatial, logical-mathematical, bodily-kinesthetic (movement), interpersonal (understanding others), intrapersonal (understanding self), and naturalist (observing and understanding natural and human-made patterns and systems) (see Table 4.1 on page 110), Gardner stresses that there may be more kinds of intelligence—eight is not a magic number. Recently he has speculated that there may be a spiritual intelligence and an existential intelligence or the abilities to contemplate big questions about the meaning of life (Gardner, 1999). Gardner bases his notion of separate abilities on evidence that brain damage (from a stroke, for example) often interferes with functioning in one area, such as language, but does not affect functioning in other areas. Also, individuals may excel in one of these eight areas but have no remarkable abilities in the other seven.

What are these intelligences? Gardner (1998, 1999) contends that an intelligence is the ability to solve problems and create products or outcomes that are valued by a culture. Varying cultures and eras of history place different values on the eight intelligences. A naturalist intelligence is critical in farming cultures, whereas verbal and mathematical intelligences are important in technological cultures. In addition, Gardner believes that intelligence has a biological basis. Intelligence "is a biological and psychological potential; that potential is capable of being realized to a greater or lesser extent as a consequence of the experiential, cultural, and motivational factors that affect a person" (1998, p. 62).

Gardner's multiple intelligence theory has not received wide acceptance in the scientific community, even though it has been embraced by many educators. Some critics suggest that several of intelligences are really talents (bodily-kinesthetic skill, musical ability) or personality traits (interpersonal ability). Other "intelligences" are
### Eight Intelligences

Howard Gardner's theory of multiple intelligences suggests that there are eight kinds of human abilities. An individual might have strengths or weaknesses in one or several areas.

<table>
<thead>
<tr>
<th>Intelligence</th>
<th>End States</th>
<th>Core Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logical-mathematical</td>
<td>Scientist</td>
<td>Sensitivity to, and capacity to discern, logical or numerical patterns; ability to</td>
</tr>
<tr>
<td></td>
<td>Mathematician</td>
<td>handle long chains of reasoning.</td>
</tr>
<tr>
<td>Linguistic</td>
<td>Poet</td>
<td>Sensitivity to the sounds, rhythms, and meanings of words; sensitivity to the</td>
</tr>
<tr>
<td></td>
<td>Journalist</td>
<td>different functions of language.</td>
</tr>
<tr>
<td>Musical</td>
<td>Composer</td>
<td>Abilities to produce and appreciate rhythm, pitch, and timbre; appreciation of</td>
</tr>
<tr>
<td></td>
<td>Violinist</td>
<td>the forms of musical expressiveness.</td>
</tr>
<tr>
<td>Spatial</td>
<td>Navigator</td>
<td>Capacities to perceive the visual-spatial world accurately and to perform</td>
</tr>
<tr>
<td></td>
<td>Sculptor</td>
<td>transformations on one's initial perceptions.</td>
</tr>
<tr>
<td>Bodily-kinesthetic</td>
<td>Dancer</td>
<td>Abilities to control one's body movements and to handle objects skillfully.</td>
</tr>
<tr>
<td></td>
<td>Athlete</td>
<td></td>
</tr>
<tr>
<td>Interpersonal</td>
<td>Therapist</td>
<td>Capacities to discern and respond appropriately to the moods, temperaments,</td>
</tr>
<tr>
<td></td>
<td>Salesman</td>
<td>motivations, and desires of other people.</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>Person with detailed, accurate self-knowledge</td>
<td>Access to one's own feelings and the ability to discriminate among them and draw on them to guide behavior; knowledge of one's own strengths, weaknesses, desires, and intelligence.</td>
</tr>
<tr>
<td>Naturalist</td>
<td>Botanist</td>
<td>Abilities to recognize plants and animals, to make distinctions in the natural</td>
</tr>
<tr>
<td></td>
<td>Farmer</td>
<td>world, to understand systems and define categories (perhaps even categories of</td>
</tr>
<tr>
<td></td>
<td>Hunter</td>
<td>intelligence).</td>
</tr>
</tbody>
</table>


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**Multiple Intelligences Go to School.** An advantage of Gardner's perspective is that it expands teachers' thinking about abilities and avenues for teaching, but the theory has been misused. Some teachers embrace a simplistic version. They include every "intelligence" in every lesson, no matter how inappropriate. Table 4.2 lists some misuses and positive applications of Gardner's work.

Even though many teachers and schools are enthusiastic about Gardner's ideas, there is not yet strong research evidence that adopting a multiple intelligences approach will enhance learning. In one of the few carefully designed evaluations, Callahan, Tomlinson, and Plucker (1997) found no significant gains in either achievement or self-concept for students who participated in START, a multiple intelligences approach to identifying and promoting talent in students who were at risk of failing. Learning is still hard work, even if there are multiple paths to knowledge. Perry Klein
Table 4.2: Misuses and Applications of Multiple Intelligence Theory

Recently Howard Gardner described these negative and positive applications of his theory. The quotes are his words on the subject.

**Misuses:**

1. **Trying to teach all concepts or subjects using all intelligences:** "There is no point in assuming that every subject can be effectively approached in at least seven ways, and it is a waste of effort and time to attempt to do this."

2. **Assuming that it is enough just to apply a certain intelligence, no matter how you use it:** For bodily-kinesthetic intelligence, for example, "random muscle movements have nothing to do with the cultivation of the mind."

3. **Using an intelligence as a background for other activities:** such as playing music while students solve math problems. "The music's function is unlikely to be different from that of a dripping faucet or humming fan."

4. **Mixing intelligences with other desirable qualities:** For example, interpersonal intelligence is often distorted as a license for cooperative learning and intrapersonal intelligence is often distorted as a rationale for self-esteem programs.

5. **Direct evaluation or even grading of intelligences without regard to context:** "I see little point in grading individuals in terms of how 'linguistic' or how 'bodily-kinesthetic' they are."

**Good uses:**

1. **The cultivation of desired capabilities:** "Schools should cultivate those skills and capabilities that are valued in the community and in the broader society."

2. **Approaching a concept, subject matter, discipline in a variety of ways:** Schools try to cover too much. "It makes far more sense to spend a significant amount of time on key concepts, generative ideas, and essential questions and to allow students to become familiar with these notions and their implications."

3. **The personalization of education:** "At the heart of the MI perspective—in theory and in practice—inheres in taking human difference seriously."


(2002) argues that the multiple intelligence theory is too broad to tell teachers how to teach. "For instance, the knowledge that basketball relies on 'bodily-kinesthetic intelligence' tells a coach nothing about the skills her players need to learn" (p. 228).

**Intelligence as a Process**

As you can see, the theories of Spearman, Cattell and Horn, Carroll, and Gardner tend to describe how individuals differ in the content of intelligence—different abilities. Recent work in cognitive psychology has emphasized instead the thinking processes that may be common to all people. How do humans gather and use information to solve problems and behave intelligently? New views of intelligence are growing out of this work.

Robert Sternberg's (1985, 1990) triarchic theory of intelligence is a cognitive process approach to understanding intelligence. As you might guess from the name, this theory has three parts—analytic, creative, and practical (see Table 4.3 on page 112).

Analytic/componential intelligence involves the mental processes of the individual that lead to more or less intelligent behavior. These processes are defined in terms of components—elementary information processes that are classified by the functions
Sternberg’s Triarchic Theory of Intelligence

Sternberg suggests that intelligent behavior is the product of applying thinking strategies, handling new problems creatively and quickly, and adapting to contexts by selecting and reshaping our environment.

<table>
<thead>
<tr>
<th>Analytic Componential Intelligence</th>
<th>Creative Experiential Intelligence</th>
<th>Practical Contextual Intelligence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Ability to formulate new ideas and combine unrelated facts; creativity—ability to deal with novel situations and make new solutions automatic.</td>
<td>Ability to adapt to a changing environment and shape the environment to make the most of opportunities—problem solving in specific situations.</td>
</tr>
<tr>
<td><strong>Examples</strong></td>
<td>Diagnosing a problem with a car engine; finding resources for a new project.</td>
<td>Taking your telephone off the hook or putting a “do not disturb” sign on the door to limit distractions while studying.</td>
</tr>
</tbody>
</table>

they serve and by how general they are. Metacomponents perform higher-order functions such as planning, strategy selection, and monitoring. Executing the strategies selected is handled by performance components. Gaining new knowledge is performed by knowledge-acquisition components, such as separating relevant from irrelevant information as you try to understand a new concept (Sternberg, 1985).

Some components are specific; that is, they are necessary for only one kind of task, such as solving analogies. Other components are very general and may be necessary in almost every cognitive task. For example, metacomponents are always operating to select strategies and keep track of progress. This may help to explain the persistent correlations among all types of mental tests. People who are effective in selecting good problem-solving strategies, monitoring progress, and moving to a new approach when the first one fails are more likely to be successful on all types of tests. Metacomponents may be a modern-day version of Spearman’s g.

The second part of Sternberg’s triarchic theory, creative/experiential intelligence, involves coping with new experiences. Intelligent behavior is marked by two characteristics: (1) **insight**, or the ability to deal effectively with novel situations, and (2) **automaticity**—the ability to become efficient and automatic in thinking and problem solving. Thus intelligence involves solving new problems as well as quickly turning new solutions into routine processes that can be applied without much cognitive effort.

The third part of Sternberg’s theory, practical/contextual intelligence, highlights the importance of choosing to live and work in a context where success is likely, adapting to that context, and reshaping it if necessary. Here, culture is a major factor in defining successful choice, adaptation, and shaping. For example, abilities that make a person successful in a rural farm community may be useless in the inner city or at a country club in the suburbs. People who are successful often seek situations in which their abilities will be valuable, then work hard to capitalize on those abilities and compensate for any weaknesses. Thus, intelligence in this third sense involves practical matters such as career choice or social skills. In a recent field study in a Russian city, Elena Grigorenko and Robert Sternberg (2001) found that adults with higher practical and analytical intelligence coped better mentally and physically with the stresses caused by rapid changes in that part of the world.

Practical intelligence is made up mostly of action-oriented tacit knowledge. This tacit knowledge is more likely to be learned during everyday life than through formal schooling—it is “knowing how” rather than “knowing that” (Sternberg, Wagner, Williams, & Horvath, 1995). Recently, however, Sternberg and his colleagues have designed a program for developing practical intelligence for school success by teaching...
students effective strategies for reading, writing, homework, and test taking (Sternberg & Kaufman, 1998; Williams et al., 1996).

How Is Intelligence Measured?

STOP THINK WRITE

What is the capital of France? How are an inch and a mile alike? What does obstreperous mean? Repeat these numbers backwards: 8 5 7 3 0 2 1 9 7. In what two ways is a lamp better than a candle? If a suit sells for 1/2 of the regular price at $123, what was the original cost of the suit? These items, taken from Sattler (2001, p. 222) are similar to the verbal questions from a common individual intelligence test for children. Another part of the test asks the child to tell what is missing in a picture, put pictures in order to tell a story, copy a design using blocks, assemble part of a puzzle, complete mazes, and copy symbols.

Even though psychologists do not agree about what intelligence is, they do agree that intelligence, as measured by standard tests, is related to learning in school. Why is this so? It has to do in part with the way intelligence tests were first developed.

Binet’s Dilemma. In 1904, Alfred Binet was confronted with the following problem by the minister of public instruction in Paris: How can students who will need special teaching and extra help be identified early in their school careers, before they fail in regular classes? Binet was also a political activist, very concerned with the rights of children. He believed that having an objective measure of learning ability could protect students from poor families who might be forced to leave school because they were the victims of discrimination and assumed to be slow learners.

Binet and his collaborator Theodore Simon wanted to measure not merely school achievement, but the intellectual skill students needed to do well in school. After trying many different tests and eliminating items that did not discriminate between successful and unsuccessful students, Binet and Simon finally identified 58 tests, several for each age group from 3 to 13. Binet’s tests allowed the examiner to determine a mental age for a child. A child who succeeded on the items passed by most 6-year-olds, for example, was considered to have a mental age of 6, whether the child was actually 4, 6, or 6 years old.

The concept of intelligence quotient, or IQ, was added after Binet’s test was brought to the United States and revised at Stanford University to give us the Stanford-Binet test. An IQ score was computed by comparing the mental-age score to the person’s actual chronological age. The formula was

\[ \text{Intelligence Quotient} = \frac{\text{Mental Age}}{\text{Chronological Age}} \times 100 \]

The early Stanford-Binet test has been revised four times, most recently in 1986 (Thorndike, Hagen, & Sattler, 1986). The practice of computing a mental age has proven to be problematic because IQ scores calculated on the basis of mental age do not have the same meaning as children get older. To cope with this problem, the concept of deviation IQ was introduced. The deviation IQ score is a number that tells exactly how much above or below the average a person scored on the test, compared to others in the same age group.

Group versus Individual IQ Tests. The Stanford-Binet is an individual intelligence test. It has to be administered to one student at a time by a trained psychologist and takes about two hours. Most of the questions are asked orally and do not require reading or writing. A student usually pays closer attention and is more motivated to do well when working directly with an adult.

Psychologists also have developed group tests that can be given to whole classes or schools. Compared to an individual test, a group test is much less likely to yield an accurate picture of any one person’s abilities. When students take tests in a group, they may do poorly because they do not understand the instructions, because they have
Data does not load.
debate about the size and meaning of these correlations (Current Directions in Psychological Science, 1993; McClelland, 1993). People with higher intelligence-test scores tend to complete more years of school and to have higher-status jobs. However, when the number of years of education is held constant, IQ scores and school achievement are not highly correlated with income and success in later life. Other factors such as motivation, social skills, and luck may make the difference (Goleman, 1995; Neisser et al., 1996; Sternberg & Wagner, 1993).

**Intelligence: Heredity or Environment?** Nowhere has the nature-versus-nurture debate raged so hard as in the area of intelligence. Should intelligence be seen as a potential, limited by our genetic makeup? Or does intelligence simply refer to an individual's current level of intellectual functioning, as influenced by experience and education? In fact, it is almost impossible to separate intelligence "in the genes" from intelligence "due to experience." Today, most psychologists believe that differences in intelligence are due to both heredity and environment, probably in about equal proportions for children (Petrill & Wilkerson, 2000). "Genes do not fix behavior. Rather they establish a range of possible reactions to the range of possible experiences that the environment can provide" (Weinberg, 1989, p. 101). And environmental influences include everything from the health of a child's mother during pregnancy to the amount of lead in the child's home to the quality of teaching a child receives.

As a teacher, it is especially important for you to realize that cognitive skills, like any other skills, are always improveable. **Intelligence is a current state of affairs,** affected by past experiences and open to future changes. Even if intelligence is a limited potential, the potential is still quite large, and a challenge to all teachers. For example, Japanese and Chinese students know much more mathematics than American students, but their intelligence test scores are quite similar. This superiority in math probably is related to differences in the way mathematics is taught and studied in the three countries and to the self-motivation skills of many Asian students (Baron, 1998; Stevenson & Stigler, 1992).

**Check Yourself** What is g?

- What is Gardner's view of intelligence and his position on g?
- What are the elements in Sternberg's theory of intelligence?
- How is intelligence measured and what does an IQ score mean?

Now that you have a sense of what intelligence means, let's consider how to handle cognitive ability differences in teaching.

**Ability Differences and Teaching**

**What Would You Say?** You are interviewing for a job in a new middle school, scheduled to open this fall. After about 4 minutes of small talk, the curriculum supervisor says to you, "We have been having some heated debates in this district about ability grouping and tracking. Where do you stand on those issues?"

In this section we consider alternatives for handling differences in academic ability. By the time you finish this section, especially the Point/Counterpoint on page 117, you should have an answer to the question above. Is ability grouping a solution to the challenge of ability differences?

**Between-Class Ability Grouping**

When whole classes are formed based on ability, the process is called **between-class ability grouping** or tracking, a common practice in secondary schools and some
Elementary schools as well. Many high schools have “college prep” courses and “general” courses or high-, middle-, and low-ability classes in a particular subject. Although this seems on the surface to be an efficient way to teach, research has consistently shown that segregation by ability may benefit high-achieving students, but it causes problems for low-achieving students (Garmon, Nystrand, Berends, & LePore, 1995; Oakes & Wells, 1998; Robinson & Clinkenbeard, 1998; Slavin, 1987, 1990).

Low-ability classes tend to receive lower-quality instruction in general. Teachers emphasize lower-level objectives and routine procedures, with less academic focus. Often there are more student behavior problems and, along with these problems, increased teacher stress and decreased enthusiasm. These differences in instruction and the teachers’ negative attitudes may mean that low expectations are communicated to the students. Attendance may drop along with self-confidence. The lower tracks often have a disproportionate number of minority-group and economically disadvantaged students, so ability grouping, in effect, becomes segregation in school. Possibilities for friendships become limited to students in the same ability range. Assignments to classes are often made on the basis of group IQ tests instead of tests in the subject area itself. However, group IQ tests are not good guides for what someone is ready to learn in a particular subject area (Corno & Snow, 1986; Garmon, Nystrand, Berends, & LePore, 1995; Kulik & Kulik, 1982; Slavin, 1987, 1990).

Recently there has been a movement for untracking or teaching all students in mixed ability groups, but providing extra help for those who struggle and enrichment for those who learn quickly (Corno, 1995; Oakes & Wells, 2002). Jeannie Oakes and Amy Wells (2002) described several different ways to teach effectively in secondary schools without tracking.

- Eliminate remedial courses and have one regular and one advanced track.
- Offer honors assignment options or challenge pull-out activities within each course.
- Require all students to take a common core of classes, then allow self-selection into advanced classes after the core.
- Encourage minority group students to enroll in advanced placement courses.
- Provide additional times during intercessions when struggling students can get extra help.
- Providing tutoring before and after school.
- Staff a homework help center with teachers, parents, and community volunteers.
- Instead of “dumbing down” content, teach students learning strategies for dealing with difficult material.

Not everyone agrees that untracking is a good idea. This movement has been more successful at the elementary than the secondary level. The Point/Counterpoint looks at both sides.

There are two exceptions to the general finding that between-class ability grouping leads to lower achievement. The first is found in honors or gifted classes, where high-ability students tend to perform better than comparable students in regular classes (Kulik & Kulik, 1997). The second exception is the ungraded elementary schools and the related Joplin Plan. In a ungraded school, student of several ages (for example, 6, 7, and 8) are together in one class, but they are flexibly grouped within the class for instruction based on achievement, motivation, or interest in different subjects. This cross-grade grouping seems to be effective for students of all abilities as long as the grouping allows teachers to give more direct instruction to the groups. When cross-age grouping is used to implement individualized instruction, the effects are much less positive (Linley, 1999; Gutierrez & Slavin, 1992).
Point/Counterpoint

Is Tracking an Effective Strategy?

Tracking students into different classes or streams (college-prep, vocational, remedial, gifted, etc.) has been a standard procedure in many schools for a long time, but does it work? Critics say tracking is harmful while supporters claim it is useful, even though it presents challenges.

Point

Tracking is harmful and should be eliminated.

According to Tom Loveless, writing in the April 1999 issue of Educational Leadership, "Prominent researchers and prestigious national reports have argued that tracking stands in the way of equal educational opportunity." (p. 28)

Loveless goes on to cite the work of Braddock and Slavin (1993); Carnegie Council on Adolescent Development (1995); Oakes (1985); and Wheelock (1992)—all of whom make the argument against tracking. What is the basis for these claims? Surprisingly, the evidence is not clear or direct. For example, a few well-done and carefully designed studies found that tracking increases the gap between high and low achievers by depressing the achievement of low-track students and boosting the achievement of high track students (Gamoran, 1987; Kerckhoff, 1986). And Gamoran also found that the achievement gap between low- and high-track students is greater than the gap between students who drop out of school and students who graduate. Because low-income students and students of color are overrepresented in the lower tracks, they suffer the greatest harm from tracking and should benefit the most from the elimination of tracking (Oakes, 1990; Oakes & Wells, 2002). Is this likely?

Counterpoint

Eliminating tracking will hurt many students.

Researchers who have looked closely at tracking believe that tracking may be harmful for some students some of the time, but not for all students and not all of the time. First, as most people agree, tracking seems to have positive effects for the high-track students. Gifted programs, honors classes, and advanced placement classes seem to work (Fuchs, Fuchs, Hamlet, & Karns, 1998; Robinson & Clinkenbeard, 1998). No one, especially parents, wants to eliminate the positive effects of these programs. And the chance of being assigned to a high track is 10% greater for African American students (Gamoran & Mare, 1989), so detracking could be a special disservice to these students.

What would happen if schools were detracked? Loveless (1999) identifies some possible hidden costs. First, results of a large national study suggest that when low-track 10th graders are assigned to heterogeneous classes rather than low tracks, they gain about 5 percentage points in achievement. So far, so good. But average students lose 2 percentage points when put into heterogeneous classes and high-ability students lose about 3 points.

The achievement gap is indeed narrowed, but apparently at the expense of students in regular and high tracks, registering about 70% of 11th graders in the United States. (Loveless, 1999, p. 39)

Another consequence of detracking is bright flight—the withdrawal of the brightest students from the schools. Both African American and White parents distrust mixed ability classes to meet the needs of their children (Public Agenda Foundation, 1994).

In some classes, using a mixed ability structure seems to hinder the achievement of all students. For example, students in heterogeneous algebra classes don't learn as much as students in tracked classes—whatever the ability level of the students (Epstein & Maccoby, 1992). And a meta-analysis of student self-esteem found that students in low-track classes did not have lower self-esteem than students in heterogeneous classes (Kulik & Kulik, 1997).

So what is the answer? As usual, it is more complicated than simply detracking versus tracking. Careful attention to every student's achievement may mean different answers at different times.

What do you think? Vote online at www.ablongman.com/woolfolk

In the Joplin Plan, students stay in their regular mixed ability grade level classes, but are regrouped across grade levels for reading. A reading group might therefore have students from several grades, all working on the same reading level. But be sensible about cross-age grouping. Mixing 3rd, 4th, and 5th graders for math or reading class based on what they are ready to learn makes sense. Sending a large 4th grader to the 2nd grade, where he is the only older student and stands out like a sore thumb, isn't likely to work well. Also, when cross-age classes are created just because there are too few students for one grade and not in order to better meet the students' learning needs, the results are not positive (Veenman, 1997).
Within-Class Ability Grouping

You are preparing a unit on habitats for your students. You decide to do as your old educational psychology professor recommended and give an alternate form of the final unit test as a pretest to find out what the students already know about the subject. After you reassure them that the test won’t be graded—you just want an idea about where to go in developing the lesson—the students settle in and seem to take the task seriously. Looking over the papers that night, you are dismayed. A quarter of the students made over 90% on the “final.” Quite a few got around half of the questions and problems right, but the rest of the class is clueless. The next day, when you ask Shanequa why she did so well on the test, she explains that in science class last year her group (and several others) chose habitats as the focus of their special project work. You stare at your lesson plans and realize that they fit practically no one in this class. What will you do?

Differences like the ones illustrated above are common in most schools and classrooms. If you decided to simply forge ahead and teach the same material in the same way to your entire class, you would not be alone. One study found that in 46 different classrooms, 84% of the activities were the same for high achieving and average achieving students (Westberg, Archambault, Dobyns, & Slavin, 1993). Differences in student prior knowledge are a major challenge for teachers, especially in subjects that build on previous knowledge and skills such as math and science (Loveless, 1998).

Today many elementary school classes are grouped for reading, and some are grouped for math, even though there is no clear evidence that this within-class ability grouping is superior to other approaches. Thoughtfully constructed and well taught ability groups in math and reading can be effective, but other approaches such as cooperative learning are available too. The point of any grouping strategy should be to provide appropriate challenge and support—that is, to reach children within their “zone of proximal development” (Vygotsky, 1977).

Many people are strongly against ability groupings of any kind. After reading the above section and the Point/Counterpoint, you should be able to determine your position on ability grouping and tracking—and answer the interview question at the beginning of this section. If you ever decide to use homogeneous small groups in your class, the Guidelines should make the approach more effective (Good & Brophy, 1997; Slavin, 1987).

Check Yourself

What are the problems with between-class ability grouping?

What are the alternatives available for grouping in classes?

Cognitive and Learning Styles

What Would You Say? Describe a learning activity that you have planned for a class and ways that you have accommodated individual learning styles or needs.

In this section we examine individual differences that have very little to do with intelligence but can influence students’ learning in school. These differences have been called cognitive styles or learning styles. Be aware that you may hear these terms used interchangeably. In general, educators prefer the term learning styles, and include many kinds of differences in this broad category. Psychologists tend to prefer the term cognitive styles, and limit their discussion to differences in the ways people process information (Bjorklund, 1989).

Cognitive Styles

The notion of cognitive styles is fairly new. It grew out of research on how people perceive and organize information from the world around them. Differences in cognitive style have to do with “characteristic modes of perceiving, remembering,
Guidelines

Grouping by Achievement

Form and reform groups on the basis of students' current performance in the subject being taught.

**Examples**
1. Use scores on the most recent reading assessments to establish reading groups, and rely on current math performance to form math groups.
2. Change group placement frequently when students' achievement changes.

Discourage comparisons between groups and encourage students to develop a whole-class spirit.

**Examples**
1. Don't seat groups together outside the context of their reading or math group.
2. Avoid naming ability groups—save the names for mixed-ability or whole-class teams.
3. Group by ability for one or, at the most, two subjects.

**Examples**
1. Make sure there are many lessons and projects that mix members from the groups.
2. Experiment with learning strategies in which cooperation is stressed (described in Chapter 11).
3. Keep the number of groups small (two or three at most) so that you can provide as much direct teaching as possible—leaving students alone for too long leads to less learning.

Make sure teachers, methods, and pace are adjusted to fit the needs of the group.

**Examples**
1. Organize and teach groups so that low-achieving students get appropriate extra instruction—not just the same material again.
2. Experiment with alternatives to grouping. There are alternatives to within-class grouping that appear more effective for some subjects. Dwayne Mason and Tom Good (1993) found that supplementing whole-class instruction in math with remediation and enrichment for students when they needed it worked better than dividing the class into two ability groups and teaching these groups separately.

thinking, problem solving, and decision making, reflective of information-processing regularities that develop... around underlying personality trends” (Messick, 1994, p. 122) and not with intelligence. For example, certain individuals respond very quickly in most situations. Others are more reflective and slower to respond, even though both types of people may be equally knowledgeable about the task at hand.

Field Dependence and Field Independence. In the early 1940s, Herman Witkin became intrigued by the observation that certain airline pilots would fly into a bank of clouds and fly out upside down, without realizing that they had changed position. His research on how people separate one factor from the total visual field identified the cognitive styles of field dependence and field independence (Davis, 1991; Witkin, Moore, Goodenough, & Cox, 1977).

People who are **field dependent** tend to perceive a pattern as a whole, not separating one element from the total visual field. They have difficulty focusing on one aspect of a situation, picking out important details, analyzing a pattern into different parts, or monitoring their use of strategies to solve problems. They tend to work well in groups, have a good memory for social information, and prefer subjects such as literature and history. **Field-independent** people, on the other hand, are more likely to monitor their own information processing. They perceive separate parts of a total pattern and are able to analyze a pattern according to its components. They are not as attuned to social relationships as field-dependent people, but they do well in math and science, where their analytical abilities pay off.

Students approach problems in different ways. Some may need help learning to pick out important features and to ignore irrelevant details. They may seem lost in less-structured situations and need clear, step-by-step instructions. Other students may be great at organizing but less sensitive to the feelings of others and not as effective in social situations.

**Impulsive and Reflective Cognitive Styles.** Another aspect of cognitive style is impulsivity versus reflectiveness. An impulsive student works very quickly but makes...
many mistakes. The more **reflective** student, on the other hand, works slowly and makes fewer errors. As with field dependence/independence, impulsive and reflective cognitive styles are not highly related to intelligence within the normal range. However, as children grow older, they generally become more reflective, and for school-age children, being more reflective does seem to improve performance on school tasks such as reading (Kogan, 1983; Smith & Caplan, 1988).

Students can learn to be more reflective, however, if they are taught specific strategies. One that has proved successful in many situations is **self-instruction**, described in Chapter 6. This approach capitalizes on the beneficial use of private speech described by Vygotsky (Meichenbaum, 1986). Another possibility is learning scanning strategies. For example, students taking multiple-choice tests might be encouraged to cross off each alternative as they consider it, so that no possibilities will be ignored. They might work in pairs and talk about why each possibility is right or wrong. Just slowing down is not enough. These students must be taught effective strategies for solving the problem at hand by considering each reasonable alternative. I have also encountered several bright students who seem too reflective. They turn 30 minutes of homework into an all-night project.

### Learning Styles and Preferences

**Learning styles** are approaches to learning and studying. Although many different learning styles have been described, one theme that unites most of the styles is differences between deep and surface approaches to processing information in learning situations (Snow, Corno, & Jackson, 1996). Individuals who have a **deep-processing approach** see the learning activities as a means for understanding some underlying concepts or meanings. They tend to learn for the sake of learning and are less concerned about how their performance is evaluated, so motivation plays a role as well. Students who take a **surface-processing approach** focus on memorizing the learning materials, not understanding them. These students tend to be motivated by rewards, grades, external standards, and the desire to be evaluated positively by others. Of course, the situation can encourage deep or surface processing, but there is evidence that individuals have tendencies to approach learning situations in characteristic ways (Biggs, 2001; Pintrich & Schrauben, 1992; Tait & Entwistle, 1998).

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**STOP THINK WRITE**

When, where, and how do you study best? Do you like to have music playing? Eat while you study? Make outlines or notes or draw pictures to help you remember? See the CW activity to take a learning styles test for yourself.

**What Are Learning Preferences?** Since the late 1970s, a great deal has been written about differences in students’ learning preferences (Dunn, 1987; Dunn & Dunn, 1978, 1987; Gregorc, 1982; Keefe, 1982). Workshops and in-service training sessions around the country focus on this topic. Learning preferences are usually called **learning styles** in these workshops, but I believe preference is a more accurate label. **Learning preferences** are individual preferences for particular learning modes and environments. They could be preferences for where, when, with whom, or what lighting, food, or music you like to study. Think for a minute about how you learn best. I like to study and write during large blocks of time, late at night. I usually make some kind of commitment or deadline every week so that I have to work in long stretches to finish the work before that deadline. Then I take a day off. When I plan or think, I have to see my thinking in writing. I have a colleague who draws diagrams of relationships when she listens to a speaker or plans a paper. You may be similar or very different, but we all may work effectively.

There are a number of instruments for assessing students’ learning preferences. Be aware, however, that many lack evidence of reliability and validity (Stahl, 2002).
People are different, and it is good practice to recognize and accommodate individual differences. It is also good practice to present information in a variety of ways through more than one modality, but it is not wise to categorize learners and prescribe methods solely on the basis of tests with questionable technical qualities... The idea of learning styles is appealing, but a critical examination of this approach should cause educators to be skeptical. (Snider, 1990, p. 53)

Teachers can make options available to accommodate individual preferences. Having quiet, private corners as well as large tables for working; comfortable cushions as well as straight chairs; brightly lighted desks along with darker areas; headsets for listening to music as well as earplugs; structured as well as open-ended assignments; information available from videos and tapes as well as in books—all these options will allow students to work and learn in their preferred mode at least some of the time.

Cautions. Some proponents of learning styles believe that students learn more when they study in their preferred setting and manner (Dunn, Beaudry, & Klavas, 1989; Dunn & Dunn, 1987). And there is evidence that very bright students need less structure and prefer quiet, solitary learning (Torrance, 1986). But most educational psychologists are skeptical about the value of learning preferences. “The reason researchers roll their eyes at learning styles research is the utter failure to find that assessing children’s learning styles and matching to instructional methods has any effect on their learning” (Stahl, 2002, p. 99). So before you try to accommodate all your students’ learning styles, remember that students, especially younger ones, may not be the best judges of how they should learn. Sometimes students, particularly students who have difficulty, prefer what is easy and comfortable; real learning can be hard and uncomfortable. Sometimes students prefer to learn in a certain way because they have no alternatives; it is the only way they know how to approach the task. These students may benefit from developing new—and perhaps more effective—ways to learn.

Check Yourself: Distinguish between cognitive style and learning preference.

Should teachers match instruction to individual learning styles?

Thus far we have focused mostly on teachers’ responses to the varying abilities and styles of students. For the rest of the chapter we will consider what can interfere with learning. It is important for all teachers to be aware of these issues because laws and policy changes over the past 25 years have expanded teachers’ responsibilities in working with all students.

Changes in the Law: Integration and Inclusion

Have you ever had the experience of being the only one in a group who had trouble doing something? How would you feel if every day in school you faced the same kind of difficulty, while everyone else seemed to find the work easier than you? What kind of support and teaching would you need to keep trying?

In 1975, a law was passed that began revolutionary changes in the education of children with disabilities. The Education for All Handicapped Children Act (Public Law 94-142) required states to provide “a free, appropriate public education for every child between the ages of 3 and 21 (unless state law does not provide free public education to children 3 to 5 or 18 to 21 years of age) regardless of how, or how seriously, he may be handicapped.” In 1986, PL 99-457 extended the requirement for a free, appropriate education...
to all children ages 3 to 5 with handicaps, even in states that do not have public schooling for children this age. Also in the mid-1980s, some special educators and educational policymakers suggested that regular and special education should be merged so that regular teachers would have to take even more responsibility for the education of exceptional students. This movement is called the regular education initiative.

In 1990, PL 94-142 was amended by the Individuals with Disabilities Education Act (IDEA). This legislation replaced the word "handicapped" with "disabled," and expanded the services for students with disabilities. Also in 1990, the Americans with Disabilities Act (ADA) extended civil rights protection in employment, transportation, public accommodations, state and local government, and telecommunications to people with disabilities. In 1997, IDEA was reauthorized with some new sections as PL 105-17. A major change was that the general education classroom teacher became a member of the team that writes the student's Individualized Education Program (IEP), described below. Stay tuned—changes are likely to continue. See the CW activity or www.ed.gov/offices/OSERS/Policy/ for current information.

Let's examine the requirements in these laws. There are three major points of interest to teachers: the concept of "least restrictive placement"; the individualized education program (IEP); and the protection of the rights of students with disabilities and their parents.

**Least Restrictive Placement**

The laws require states to develop procedures for educating each child in the least restrictive placement—a setting that is as normal as possible. Earlier interpretations of this requirement led to mainstreaming—sending exceptional students into general educational settings when the students could meet expectations for that setting—for example, allowing them to participate in recess or art or music (Friend & Bursuck, 2002). In most schools students with severe disabilities were not integrated into regular classes; but in some districts there is a movement toward full inclusion—integrating all students, even those with severe disabilities, into regular classes.

Advocates of inclusion believe that students with disabilities can benefit from involvement with their non-disabled peers and should be educated with them in their regular home-district school, even if doing so means changes in educational requirements, special programs, services, and training or consultation for the regular teaching staff (Stainback & Stainback, 1992). However, some researchers caution that inclusion classrooms are not the best place for every child. For example, Naomi Zigmond and her colleagues (1995) report that only about half of the students with learning disabilities in their study of six full-inclusion elementary schools were able to benefit.

**Individualized Education Program**

The drafters of the laws recognized that each student is unique and may need a specially tailored program to make progress. The Individualized Education Program, or IEP, is written by a team that includes the student's teacher or teachers, a qualified school psychologist or special education supervisor, the parent(s) or guardian(s), and (when possible) the student. The program must be updated each year and must state in writing:

1. The student's present level of functioning.
2. Goals for the year and short-term measurable instructional objectives leading to those goals.
3. A list of specific services to be provided to the student and details of when those services will be initiated.
4. A description of how fully the student will participate in the regular school program.
5. A schedule telling how the student's progress toward the objectives will be evaluated and approximately how long the services described in the plan will be needed.
6. Beginning at age 16 (and as young as 14 for some students), a statement of needed transitional services to move the student toward further education or work in adult life.

Figure 12.3 on page 468 is an excerpt from the IEP of a 9-year-old girl with mild retardation.

**The Rights of Students and Families**

Several stipulations in these laws protect the rights of parents and students. Schools must have procedures for maintaining the confidentiality of school records. Testing practices must not discriminate against students from different cultural backgrounds. Parents have the right to see all records relating to the testing, placement, and teaching of their child. If they wish, parents may obtain an independent evaluation of their child. Parents may bring an advocate or representative to the meeting at which the IEP is developed. Students whose parents are unavailable must be assigned a surrogate parent to participate in the planning. Parents must receive written notice (in their native language) before any evaluation or change in placement is made. Finally, parents have the right to challenge the program developed for their child, and are protected by due process of law. If you have conferences with your student's family, following the suggestions in the *Family and Community Partnerships Guidelines* can make the meetings more effective.

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**Family and Community Partnerships**

**Productive Conferences**

**Plan and prepare for a productive conference.**

**Examples**

1. Have a clear purpose and gather the needed information. If you want to discuss student progress, have work samples.
2. Send home a list of questions and ask families to bring the information to the conference.

**Sample questions from Friend and Bursuck (2002) are:**

1. What is your child's favorite class activity?
2. Does your child have worries about any class activities? If so, what are they?
3. What are your priorities for your child's education this year?
4. What questions do you have about your child's education in my class this year?
5. How could we at school help make this the most successful year ever for your child?
6. Are there any topics you want to discuss at the conference that I might need to prepare for? If so, please let me know.
7. Would you like other individuals to participate in the conference? If so, please give me a list of their names.
8. Is there particular school information you would like me to have available? If so, please let me know.

**During the conference, create and maintain an atmosphere of collaboration and respect.**

**Examples**

1. Arrange the room for private conversation. Put a sign on your door to avoid interruptions. Meet around a conference table for better collaboration. Have tissues available.
2. Address families as "Mr." and "Ms." not "Mom" and "Dad" or "Grandma." Use students' names.
3. Listen to families' concerns and build on their ideas for their children.

**After the conference, keep good records and follow up on decisions.**

**Examples**

1. Make notes to yourself and keep them organized.
2. Summarize any actions or decisions in writing and send a copy to the family and any other teachers or professionals involved.
3. Communicate with families on other occasions, especially when there is good news to share.
Check Yourself Describe the main legal requirements that pertain to students with disabilities.

We turn now to the challenges your students may face.

Prevalent Problems and Mild Disabilities

Look at Table 4.4. You will see that almost 3 million students served under IDEA have specific learning disabilities and another 1 million have speech and language impairments. If you add children with mental retardation and students with emotional problems, that totals about 90% of the students served. With recent changes in the laws and new, more inclusive policies, you are likely to have children from all these categories in your classes.

Almost one-half of all students receiving some kind of special education services in the public schools are diagnosed as having learning disabilities—for far the largest category of students with disabilities.

Students with Learning Disabilities

How do you explain a student who struggles to read, write, spell, or learn math, even though he or she does not have mental retardation, emotional problems, or educational disadvantages and has normal vision, hearing, and language capabilities? One explanation is that the student has a learning disability. This is a relatively new and controversial category of exceptional students. There is no fully agreed upon definition. A recent text on learning disabilities lists a dozen definitions (Hallahan, Kauffman, & Lloyd, 1999). The National Joint Committee on Learning Disabilities (1989), a group of parents and professionals, proposes the following definition:

Learning disabilities is a general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of

<table>
<thead>
<tr>
<th>Table 4.4</th>
<th>Students Age 6–21 Served under IDEA, by Disability Category: 1998–1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disability</td>
<td>Number</td>
</tr>
<tr>
<td>Specific learning disabilities</td>
<td>2,817,148</td>
</tr>
<tr>
<td>Speech and language impairments</td>
<td>1,074,548</td>
</tr>
<tr>
<td>Mental retardation</td>
<td>611,076</td>
</tr>
<tr>
<td>Emotional disturbance</td>
<td>463,262</td>
</tr>
<tr>
<td>Multiple disabilities</td>
<td>107,763</td>
</tr>
<tr>
<td>Hearing impairments</td>
<td>70,883</td>
</tr>
<tr>
<td>Orthopedic impairments</td>
<td>69,495</td>
</tr>
<tr>
<td>Other health impairments</td>
<td>220,831</td>
</tr>
<tr>
<td>Visual impairments</td>
<td>26,132</td>
</tr>
<tr>
<td>Autism</td>
<td>53,576</td>
</tr>
<tr>
<td>Deaf-blindness</td>
<td>1,609</td>
</tr>
<tr>
<td>Traumatic brain injury</td>
<td>12,933</td>
</tr>
<tr>
<td>Developmental delay</td>
<td>11,910</td>
</tr>
<tr>
<td>All disabilities</td>
<td>5,541,166</td>
</tr>
</tbody>
</table>

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 life span. (p. 1)

This definition eliminates references to older terms such as brain injury or minimal brain dysfunction, and indicates that learning disabilities may pose a lifelong challenge. Most definitions agree that students with learning disabilities are at least average in intelligence, but have significant academic problems and perform significantly below what would be expected.

Some educators and psychologists believe the learning disability label is overused and abused. They suggest that many of the students called learning disabled are really slow learners in average schools, average learners in high-achieving schools, students with second-language problems, or students who are behind in their work because they are absent or changed schools often (Gartner & Lipsky, 1987).

**Student Characteristics.** Students with learning disabilities are not all alike. The most common characteristics are specific difficulties in one or more academic areas; poor coordination: problems paying attention; hyperactivity and impulsivity; problems organizing and interpreting visual and auditory information; disorders of thinking, memory, speech, and hearing; and difficulties making and keeping friends (Hallahan & Kauffman, 2003; Hunt & Marshall, 2002). As you can see, many students with other disabilities (such as attention deficit disorder) and many normal students may have some of the same characteristics. To complicate the situation even more, not all students with learning disabilities will have these problems, and few will have all of the problems. One student may be three years behind in reading but above grade level in math, while another student may have the opposite strengths and weaknesses and a third may have problems with organizing and studying that affect almost all subject areas.

Most students with learning disabilities have difficulties reading. Table 4.5 on page 126 lists some of the most common problems and signs. These difficulties appear to be caused by problems with relating sounds to letters that make up words, making spelling hard as well (Stanovich, 1994; Willcutt et al., 2001). Math, both computation and problem solving, is the second most common problem area for students with learning disabilities. The writing of some of these students is virtually unreadable, and their spoken language can be halting and disorganized. Students with learning disabilities often lack effective ways of approaching academic tasks. They don't know how to focus on the relevant information, get organized, apply learning strategies and study skills, change strategies when one isn't working, or evaluate their learning. They tend to be passive learners, in part because they don't know how to learn. Working independently is especially trying, so homework and seatwork are often left incomplete (Hallahan, Kauffman, & Lloyd, 1959).

Early diagnosis is important so that students with learning disabilities do not become terribly frustrated and discouraged. The students themselves do not understand why they are having such trouble, and they may become victims of learned helplessness. This condition was first identified in learning experiments with animals. The animals were put in situations where they received punishment (electric shocks) that they could not control. Later, when the situation was changed and they could have escaped the shocks or turned them off, the animals didn't even bother trying (Seligman, 1975). They had learned to be helpless victims. Students with learning disabilities may also come to believe that they cannot control or improve their own learning. This is a powerful belief. The students never exert the effort to discover that they can make a difference in their own learning, so they remain passive and helpless.

Students with learning disabilities may also try to compensate for their problems and develop bad learning habits in the process, or they may begin avoiding certain subjects out of fear of not being able to handle the work. To prevent these things from happening, the teacher should refer the students to the appropriate professionals in the school as early as possible.

**Learned helplessness** The expectation, based on previous experiences with a lack of control, that all one's efforts will lead to failure.
Table 4.1 | Reading Habits and Errors of Students with Learning Disabilities

Do any of your students show these signs? They could be indications of learning disabilities.

**Poor Reading Habits**
- Frequently loses his or her place
- Jerks head from side to side
- Expresses insecurity by crying or refusing to read
- Prefers to read with the book held within inches from face
- Shows tension while reading; such as reading in a high-pitched voice, biting lips, and fidgeting

**Word Recognition Errors**
- Omitting a word (e.g., “He came to the park,” is read, “He came to park”)
- Inserting a word (e.g., “He came to the [beautiful] park”)
- Substituting a word for another (e.g., “He came to the pond”)
- Reversing letters or words (e.g., was is read saw)
- Mispronouncing words (e.g., park is read park)
- Transposing letters or words (e.g., “The dog ate fast,” is read, “The dog fast ate”)
- Not attempting to read an unknown word by breaking it into familiar units
- Slow, laborious reading; less than 20 to 30 words per minute

**Comprehension Errors**
- Recalling basic facts (e.g., cannot answer questions directly from a passage)
- Recalling sequence (e.g., cannot explain the order of events in a story)
- Recalling main theme (e.g., cannot give the main idea of a story)


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**Teaching Students with Learning Disabilities.** There is also controversy over how best to help these students. A promising approach seems to be to emphasize study skills and methods for processing information in a given subject such as reading or math. Many of the principles of cognitive learning from Chapters 7 and 8 can be applied to help all students improve their attention, memory, and problem-solving abilities (Sawyer, Graham, & Harris, 1992). The Kansas Learning Strategies Curriculum is one example of this approach (Deshler & Schumaker, 1986).

In teaching reading, a combination of teaching letter-sound (phonological) knowledge and word identification strategies appears to be effective. For example, Maureen Lovett and her colleagues (Lovett et al., 2000) in Canada taught students with severe reading disabilities to use the four different word identification strategies: (1) word identification by analogy, (2) seeking the part of the word that you know, (3) attempting different vowel pronunciations, and (4) “peeling off” prefixes and suffixes in a multisyllabic word. Teachers worked one-to-one with the students to learn and practice these four strategies along with analysis of word sounds and blending sounds into words (phonological knowledge). Direct teaching of skills and strategies is especially important for students with reading disabilities. And the teaching does not have to focus on low-level skills. Joanna Williams and her colleagues (2002) describe a system for teaching students with severe learning disabilities how to identify the theme in a literature story. *Reaching Every Student* describes the approach.

**Students with Communication Disorders**

From the ages of 6 to 11, students with communication disorders are the second largest group served by special education. They make up about 19% of students...
Reaching Every Student

Higher Order Comprehension and Severe Learning Disabilities

Joanna Williams (2002) developed the Theme Identification Program to help middle school students with severe learning disabilities understand and use the abstract idea of themes in literature. Teachers taught 12 different lessons using 12 stories. Briefly (see the article for more detail) the process for each lesson was:

**Prereading:** defining a theme, discussing the value of themes, drawing on students’ personal experiences.

**Reading:** the teacher reads the story and inserts questions while reading to help students connect what they know to the story. At the end of the reading, the class discusses the main point in the story and the teacher reads a summary highlighting the points.

**Discussing Using the Theme Scheme:** The teacher and students discuss the important information using six organizing questions. The first four questions focused on the story content:
- Who was the main character?
- What was her/his problem?
- What did she/he do?
- What happened at the end of the story?

The last two questions encouraged students to make judgments in order to identify a theme:
- Was what happened good or bad?
- Why was it good or bad?

**Identifying the Theme:** Students then state the theme in a standard format:
- [The main character] learned that she (he) should (not) ____________.
- We should (not) ____________.
- The theme of the story is ____________.

**Application of Theme:** the students learn to ask three questions to generalize the theme:
- Can you name someone who should (not) ____________?
- When is it important for (that person) to do (or not do) ____________?
- In what situation will this help?

**Multimodal Activity:** Every lesson after the first one included a role-play of the story theme where the students acted out the characters in the story, an art activity to show the theme, or a music activity such as writing a rap song that communicated the theme.

**Review:** a recap of the Theme Scheme and a preview of the next lesson.


Receiving services. Language disorders may arise from many sources, because so many different aspects of the individual are involved in learning language. A child with a hearing impairment will not learn to speak normally. A child who hears inadequate language at home will learn inadequate language. Children who are not listened to, or whose perception of the world is distorted by emotional problems, will reflect these problems in their language development. Because speaking involves movements, any impairment of the motor functions involved with speech can cause language disorders. And because language development and thinking are so interwoven, any problems in cognitive functioning can affect ability to use language.

**Speech Disorders.** Students who cannot produce sounds effectively for speaking are considered to have a speech disorder. About 5% of school-age children have some form of speech impairment. Articulation problems and stuttering are the two most common problems.

Articulation disorders include substituting one sound for another (*thunshine* for *sunshine*), distorting a sound (*shoup* for *soup*), adding a sound (*ideer* for *idea*), or omitting sounds (*po-y* for *pony*) (Smith, 1998). Keep in mind, however, that most children are 6 to 8 years old before they can successfully pronounce all English sounds.

**Speech disorder** Inability to produce sounds effectively for speaking.

**Articulation disorders** Any of a variety of pronunciation difficulties, such as the substitution, distortion, or omission of sounds.

www.cengage.com/woolfolk

Prevalent Problems and Mild Disabilities
Communication skills are an important component of a student’s IEP. Adaptations like the speech talker shown in this photo help students with communication disorders participate in general education activities.

in normal conversation. The sounds of the consonants l, r, y, s, and z and the consonant blends sh, ch, zh, and th are the last to be mastered. Also, there are dialect differences based on geography that do not represent articulation problems. A child in your class from New England might say “ideer” for “idea” but have no speech impairment.

Stuttering generally appears between the ages of 3 and 4. It is not yet clear what causes stuttering, but it can lead to embarrassment and anxiety for the sufferer. In about 50% of cases, stuttering disappears during early adolescence (Wiig, 1982). If stuttering continues more than a year or so, the child should be referred to a speech therapist. Early intervention is critical (Onslow, 1992).

Voicing problems, a third type of speech impairment, include speaking with an inappropriate pitch, quality, or loudness or in a monotone (Hallahan & Kauffman, 2003). A student with any of these problems should be referred to a speech therapist. Recognizing the problem is the first step. Be alert for students whose pronunciation, loudness, voice quality, speech fluency, expressive range, or rate is very different from that of their peers. Pay attention also to students who seldom speak. Are they simply shy, or do they have difficulties with language?

Language Disorders. Language differences are not necessarily language disorders. Students with language disorders are those who are markedly deficient in their ability to understand or express language, compared with other students of their own age and cultural group (Owens, 1999). Students who seldom speak, who use few words or very short sentences, or who rely only on gestures to communicate should be referred to a qualified school professional for observation or testing. Table 4.6 gives ideas for promoting language development for all students.

Students with Mental Retardation

According to the American Association on Mental Deficiency (AAMD Ad Hoc Committee on Terminology and Classification, 1992, p. 5), mental retardation refers to:

significant limitations in present intellectual functioning. It is characterized by significantly subaverage intellectual functioning existing concurrently with related limitations in two or more of the following applicable adaptive skill areas: communication, self-care, home living, social skills, community use.
self-direction, health and safety, functional academics, leisure, and work. Mental retardation manifests before age 18.

Intellectual function is usually measured by IQ tests with a cutoff score of 70 to 75 as one indicator of retardation. But an IQ score below the 70 to 75 range is not enough to diagnose a child as having mental retardation. There must also be problems with adaptive behavior, day-to-day independent living, and social functioning. This caution is especially important when interpreting the scores of students from different cultures. Defining retardation based on test scores alone can create what some critics call "6-hour retardates"—students who are seen as retarded only for the part of the day they attend school.

Only about 1% to 1.5% of the population fit the AAMD's definition of having retardation in both intellectual functioning and adaptive behavior (Hallahan & Kauffman, 2003). For years, retardation was further divided into mild, moderate, severe, and profound levels, with each level keyed to a particular range of IQ scores. Most school districts still use this system. However, the IQ ranges are not perfect predictors of individuals' abilities to function, so the AAMR now recommends a classification scheme based on the amount of support that a person requires to function at his or her highest level. Table 4.7 summarizes this new classification system.

As a regular teacher, you may not have contact with children needing extensive or pervasive support unless your school is participating in a full inclusion program for exceptional students (described earlier in this chapter), but you probably will work with children with mild retardation. In the early grades, these students may simply learn more slowly than their peers. They need more time and more practice

<table>
<thead>
<tr>
<th>Table 4.6</th>
<th>Encouraging Language Development</th>
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<tbody>
<tr>
<td>- Talk about things that interest children.</td>
<td></td>
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<tr>
<td>- Follow the children's lead. Reply to their initiations and comments. Share their excitement.</td>
<td></td>
</tr>
<tr>
<td>- Don't ask too many questions. If you must, use questions such as how did he do... why did he do... and what happened... that result in longer explanatory answers.</td>
<td></td>
</tr>
<tr>
<td>- Encourage children to ask questions. Respond openly and honestly. If you don't want to answer a question, say so and explain why (I don't think I want to answer that question; it's very personal).</td>
<td></td>
</tr>
<tr>
<td>- Use a pleasant tone of voice. You need not be a comedian, but you can be light and humorous. Children love it when adults are a little silly.</td>
<td></td>
</tr>
<tr>
<td>- Don't be judgmental or make fun of children's language. If you are overly critical of children's language or try to catch and correct all errors, they will stop talking to you.</td>
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<tr>
<td>- Allow enough time for children to respond.</td>
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<tr>
<td>- Treat children with courtesy by not interrupting when they are talking.</td>
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<tr>
<td>- Include children in family and classroom discussions. Encourage participation and listen to their ideas.</td>
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<tr>
<td>- Be accepting of children and of their language. Hugs and acceptance can go a long way.</td>
<td></td>
</tr>
<tr>
<td>- Provide opportunities for children to use language and to have that language work for them to accomplish their goals.</td>
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<table>
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<tr>
<th>Table 4.7</th>
<th>AAMR Classification Scheme for Mental Retardation</th>
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<tbody>
<tr>
<td>This new scheme for classification is based on the level of support a student would need to function as completely as possible.</td>
<td></td>
</tr>
<tr>
<td>Intermittent</td>
<td>Supports on an &quot;as needed basis.&quot; Characterized by episodic nature. Person not always needing the support(s), or short-term supports needed during life-span transitions (e.g., job loss or an acute medical crisis). Intermittent supports may be high or low intensity when provided.</td>
</tr>
<tr>
<td>Limited</td>
<td>An intensity of supports characterized by consistency over time and time-limited but not of an intermittent nature, may require fewer staff members and less cost than more intense levels of support (e.g., time-limited employment training or transitional supports during the school-to-adult period).</td>
</tr>
<tr>
<td>Extensive</td>
<td>Supports characterized by regular involvement (e.g., daily) in at least some environments (such as work or home) and not time-limited (e.g., long-term home living support).</td>
</tr>
<tr>
<td>Pervasive</td>
<td>Supports characterized by their constancy, high intensity, provided across environments; potential life-sustaining nature. Pervasive supports typically involve more staff members and intrusiveness than do extensive or time-limited supports.</td>
</tr>
</tbody>
</table>

SOURCE: From Mental Retardation: Definition, Classification, and Systems of Support, by AAMR Ad Hoc Committee on Terminology and Classification, 1992. Copyright © 1992 by the American Association on Mental Retardation. Reprinted with permission from the AAMR.
to learn and have difficulty transferring learning from one setting to another or putting small skills together to accomplish a more complex task. The Guidelines list suggestions for teaching students with below-average general intelligence.

Learning goals for many students with mental retardation between the ages of 9 and 13 include basic reading, writing, arithmetic, learning about the local environment, social behavior, and personal interests. In junior and senior high school, the emphasis is on vocational and domestic skills, literacy for living (using the telephone book; reading signs, labels, and newspaper ads; completing a job application), job-

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**GUIDELINES**

1. Determine readiness. However little a child may know, he or she is ready to learn a next step.
2. State and present objectives simply.
4. Present material in small, logical steps. Practice extensively before going on to the next step.
5. Work on practical skills and concepts based on the demands of adult life.
6. Do not skip steps. Students with average intelligence can form conceptual bridges from one step to the next, but children with retardation need every step and bridge made explicit. Make connections for the student. Do not expect him or her to "see" the connections.
7. Be prepared to present the same idea in many different ways.
8. Go back to a simpler level if you see the student is not following.
9. Be especially careful to motivate the student and maintain attention.
10. Find materials that do not insult the student. A junior high boy may need the low vocabulary of "See Spot run," but will be insulted by the age of the characters and the content of the story.
11. Focus on a few target behaviors or skills so you and the student have a chance to experience success. Everyone needs positive reinforcement.
12. Be aware that students with retardation must overlearn, repeat, and practice more than children of average intelligence. They must be taught how to study and they must frequently review and practice their newly acquired skills in different settings.
13. Pay close attention to social relations. Simply including students with retardation in a regular class will not guarantee that they will be accepted or that they will make and keep friends.
related behaviors such as courtesy and punctuality; health self-care; and citizenship skills. Today there is a growing emphasis on transition programming—preparing the student to live and work in the community. As you saw earlier in the chapter, the law requires that schools design an IEP, or individualized educational program, for every disabled child. An ITP, or individualized transition plan, may be part of the IEP for students with retardation (Halvahan & Kauffman, 2003).

Students with Emotional or Behavioral Disorders

Students with emotional and behavioral disorders can be among the most difficult to teach in a regular class and a source of concern for many prospective teachers (Avramidis, Bayliss, & Burden, 2000). Behavior becomes a problem when it deviates so greatly from what is appropriate for the child's age group that it significantly interferes with the child's own growth and development and/or the lives of others. Clearly, deviation implies a difference from some standard, and standards of behavior differ from one situation, age group, culture, and historical period to another. Thus, what passes for team spirit in the football bleachers might be seen as disturbed behavior in a bank or restaurant. In addition, the deviation must be more than a temporary response to stressful events; it must be consistent across time and in different situations.

Quay and Peterson (1987) describe six dimensions of emotional/behavioral disorders. Children who have conduct disorders are aggressive, destructive, disobedient, uncooperative, distracted, disruptive, and persistent. They have been corrected and punished for the same misbehavior countless times. The adults and even the other children in their lives dislike many of these children. The most successful strategies for helping these children are the behavior management approaches described in Chapter 6. These students need very clear rules and consequences, consistently enforced. The future is not promising for students who never learn to control their behavior and who also fail academically. Waiting for the students to "outgrow" their problems is seldom effective (O'Leary & Wilson, 1987; Theodore, Bray, Kehle, & Lenson, 2001).

Children who are extremely anxious, withdrawn, shy, depressed, and hypersensitive, who cry easily and have little confidence, are said to have an anxiety-withdrawal disorder. These children have few social skills and consequently very few friends. The most successful approaches with them appear to involve the direct teaching of social skills (Cohen, 1999; Gresham, 1981).

The third category is attentional problems immaturity. Characteristics include a short attention span, frequent daydreaming, little initiative, messiness, and poor coordination. If an immature student is not too far behind others in the class, she or he may respond to the behavior management strategies described in Chapter 6. But if these approaches fail or if the problem is severe, you should consult the school psychologist, guidance counselor, or another mental health professional. Related to this dimension is the category of motor excess. These students are restless and tense; they seem unable to sit still or stop talking. You can see that these children share many characteristics of ADHD.

The fifth category of behavior disorders is socialized aggression. Students in this group are often members of gangs. They may steal or vandalize because their peer culture expects it.

Finally, some students exhibit psychotic behavior. You are not likely to work with many of these students. Their behavior may be bizarre, and they may express very farfetched ideas. These six categories are very general. If you are concerned about the behavior of one of your students, it is best to consult the school psychologist or guidance counselor.

Many exceptional students—those with learning disabilities, mental retardation, or ADHD, for example—may have emotional or behavioral problems as well as they
**GUIDELINES**

**Disciplining Students with Emotional Problems**

Be careful not to violate due process rights of students—students and parents must know the behaviors expected and the consequences for misbehavior.

**Examples**
1. Communicate expectations clearly and in writing.
2. Ask parents and students to sign a copy of the classroom rules.
3. Post rules and consequences in class and on a class Web page.

Be very careful with severe punishments that remove students from class for a long time. These constitute a change in the child’s educational program (IEP) and require due process.

**Examples**
1. Suspensions of more than 10 days require due process.
2. Prolonged periods of time-out (in-school suspension) may require due process.

Punishments for students with severe emotional problems must serve a clear educational purpose.

**Examples**
1. Give a rationale for punishment or correction that ties an action to student’s learning or the learning of others in the class.
2. Use written behavior contracts that include a rationale.

Make sure the rule and the punishment are reasonable.

**Examples**
1. Consider the student’s age and physical condition.

2. Does the punishment match the offense and the way others in the class are treated?
3. Do other teachers handle similar situations in the same way?
4. Try less intrusive punishments first. Be patient. Move to more severe actions only when less severe procedures fail.

Keep good records and work collaboratively so all involved are informed.

**Examples**
1. Document the punishment of all students in a journal or log. List what precipitated the punishment, what procedures were used, how long the punishment lasted, the results, modifications to the punishment, and new results.
2. Note meetings with families, special education teachers, and the principal.
3. Make any changes involving management plans with families and other teachers.

Always use positive consequences in conjunction with negative ones.

**Examples**
1. If students lose points for breaking rules, give them ways to regain points through positive behavior.
2. Recognize genuine accomplishment and small steps—DON’T say, “Well it’s about time you . . . .”

Struggle in school. In Chapter 13 we will consider how to help all students cope with social and emotional challenges that threaten both their own learning and the learning of others in the classroom.

Because students with emotional and behavioral disorders frequently break rules and push the limits, teachers often find themselves disciplining the students. Be aware that there have been court rulings on disciplining students with serious emotional problems (Yell, 1990). The Guidelines above may help when you are faced with these situations.

**Check Yourself**

- What is a learning disability?
- What are the most common communication disorders?
- What defines mental retardation?
- What are the best approaches for students with emotional problems?

No set of teaching techniques will be effective for every child. You should work with the special education teachers in your school to design appropriate instruction for individual students. Also, you will need to continue your professional development in this area throughout your teaching career. The next section gives you one way.
Enhancing Your Expertise with Technology

Learning about Learning Disabilities

Reflecting on 30 years in the classroom, a colleague of mine, James O’Kelly, knew that he had excellent support as he began teaching in a new school—just opened the year he came. The principal encouraged innovation. The faculty included many of the district’s better teachers, who served as mentors and models. The teachers—novices and veterans—worked over the summer prior to the opening of the school (with pay!)—to help design the school’s curriculum and materials.

Despite all this support, the most difficult challenge that Jim faced was his work with children with learning disabilities. How could seemingly typical 6th graders be unable to comprehend a simple paragraph, misapply the few steps for the solution of a math problem, or confuse simple oral directions? How should these students be graded? What accommodations could be made for them? Advice from the principal and veteran teachers helped somewhat, as did coursework at a local college. Nevertheless, finding answers was not easy.

Since Jim entered the classroom, the laws, court decisions, public attitudes, and research about learning disabilities have changed dramatically. Future teachers will be expected to be far more knowledgeable about learning disabilities than teachers in the past. LD Online (www.ldonline.org) can provide help with these challenges. It has a variety of resources that will expand your knowledge about this important topic. You will find descriptions and characteristics of specific learning disabilities, autobiographical accounts by people who have experienced learning difficulties, a bulletin board where people exchange information and questions, an archived column in which a child psychiatrist answers questions, and more. Here are a few questions that you might explore at LD Online:

- How can teachers’ attributions about academic achievement affect the ways they interact with students with learning disabilities?
- How can teachers structure the classroom environment to enhance the academic achievement experiences of their students with learning disabilities?
- What can a teacher do to facilitate home-school collaboration for students with ADHD?
- What are the main issues involved in the use of assistive technologies to support the learning of children with learning disabilities?
- What instructional strategies can I use to assist students with various specific learning disabilities?

Each of these questions relates to one or more topics found in this textbook: attribution theory, classroom environment, home-school communication, ADHD, assistive technologies, and instructional strategies. As you encounter other major themes and concepts in this textbook, go to LD Online to see how they relate to learning disabilities.

Less Prevalent Problems and More Severe Disabilities

In this section we meet students with more severe disabilities. In your first years of teaching you may encounter only a few of these students, but you still can make a difference in their lives.

Students with Health Impairments

Some students must have special devices such as braces, special shoes, crutches, or wheelchairs to participate in a normal school program. If the school has the necessary architectural features, such as ramps, elevators, and accessible rest rooms, and if teachers allow for the physical limitations of students, little needs to be done to alter the usual educational program. Two other health impairments you may encounter are cerebral palsy and seizure disorders.

Cerebral Palsy and Multiple Disabilities. Damage to the brain before or during birth or during infancy can cause a child to have difficulty moving and coordinating his or her body. The problem may be very mild, so the child simply appears a bit...
clumsy, or so severe that voluntary movement is practically impossible. The most common form of cerebral palsy is characterized by spasticity (overly tight or tense muscles). Many children with cerebral palsy also have secondary handicaps (Kirk, Gallagher, & Anastasiou, 1993). In the classroom, these secondary handicaps are the greatest concern—and these are generally what the regular teacher can help with most. For example, many children with cerebral palsy also have visual impairments, speech problems, or mild mental retardation. The strategies described in this chapter should prove helpful in such situations.

**Seizure Disorders (Epilepsy).** A seizure is a cluster of behaviors that occurs in response to abnormal neurochemical activities in the brain (Hardman, Drew, & Egan, 1999). The effects of the seizure depend on where the discharge of energy starts in the brain and how far it spreads. People with epilepsy have recurrent seizures, but not all seizures are the result of epilepsy; temporary conditions such as high fevers or infections can also trigger seizures. Seizures take many forms and differ with regard to the length, frequency, and movements involved. A partial or absence seizure involves only a small part of the brain, whereas a generalized or tonic-clonic seizure includes much more of the brain.

Most generalized seizures (once called grand mal) are accompanied by uncontrolled jerking movements that ordinarily last two to five minutes, possible loss of bowel or bladder control, and irregular breathing, followed by a deep sleep or coma. On regaining consciousness, the student may be very weary, confused, and in need of extra sleep. Most seizures can be controlled by medication. If a student has a seizure accompanied by convulsions in class, the teacher must take action so the student will not be injured. The major danger to a student having such a seizure is getting hurt by striking a hard surface during the violent jerking.

Stay calm and reassure the rest of the class. Do not try to restrain the child’s movements; you can’t stop the seizure once it starts. Lower the child gently to the floor, away from furniture or walls. Move hard objects away. Loosen scarves, ties, or anything that might make breathing difficult. Turn the child’s head gently to the side, put a soft coat or blanket under the student’s head. Never put anything in the student’s mouth—it is NOT true that people having seizures can swallow their tongues. Don’t attempt artificial respiration unless the student does not start breathing again after the seizure stops. Find out from the student’s parents how the seizure is usually dealt with. If one seizure follows another and the student does not regain consciousness in between, if the student is pregnant or has a medical ID that does not say “epilepsy, seizure disorder,” if there are signs of injury, or if the seizure goes on for more than 5 minutes, get medical help right away (Friend & Bursuck, 2002). For more ideas and information, see the Epilepsy Foundation of America website at www.efa.org/answerplace.

Not all seizures are dramatic. Sometimes the student just loses contact briefly. The student may stare, fail to respond to questions, drop objects, and miss what has been happening for 1 to 30 seconds. These were once called petit mal, but they are now referred to as absence seizures and can easily go undetected. If a child in your class appears to daydream frequently, does not seem to know what is going on at times, or cannot remember what has just happened when you ask, you should consult the school psychologist or nurse. The major problem for students with absence seizures is that they miss the continuity of the class interaction—these seizures can occur as often as 100 times a day. If their seizures are frequent, students will find the lessons confusing. Question these students to be sure they are understanding and following the lesson. Be prepared to repeat yourself periodically.

**Students Who Are Deaf and Hard of Hearing**

You will hear the term, “hearing impaired,” to describe these students, but the deaf community and researchers object to the term “hearing impaired,” so I will use their
preferred terms, deaf and hard of hearing. The number of deaf students has been
decreasing over the past three decades, but when the problem does occur, the
consequences for learning are serious (Hunt & Marshall, 2002). Signs of hearing problems
are turning one ear toward the speaker, favoring one ear in conversation, or
understanding conversation when the speaker’s face cannot be seen. Other indications
include not following directions, seeming distracted or confused at times, frequently
asking people to repeat what they have said, mispronouncing new words or names,
and being reluctant to participate in class discussions. Take note particularly of stu-
dents who have frequent earaches, sinus infections, or allergies.

In the past, educators have debated whether oral or manual approaches are bet-
ter for children who are deaf or hard of hearing. Oral approaches involve speech read-
ing (also called lip reading) and training students to use whatever limited hearing
they may have. Manual approaches include sign language and finger spelling. Re-
search indicates that children who learn some manual method of communicating
perform better in academic subjects and are more socially mature than students who
are exposed only to oral methods. Today, the trend is to combine both approaches
(Hallahan & Kauffman, 2003).

Another perspective suggests that people who are deaf are part of a different cul-
ture with a different language, values, social institutions, and literature. Hunt and
Marshall (2002) quote one deaf professional: “How would women like to be referred
to as male-impaired, or whites like to be called black-impaired? I’m not impaired; I’m
deaf” (p. 348). From this perspective, a goal is to help deaf children become bilingual
and bicultural, to be able to function effectively in both cultures. Technological in-
novations such as teletypewriters in homes and public phones and the many avenues
of communication through e-mail and the Internet have expanded communication
possibilities for all people, including those with hearing problems.

Students with Low Vision and Blindness

In the United States only about 1 child in 1,000 has visual impairments so serious that
special educational services are needed. Most of this group needing special services is
classified as having low vision. This means they can read with the aid of a magnify-
ing glass or large-print books. A small group of students, about 1 in every 2,500, is
educationally blind. These students must use hearing and touch as the predominant
learning channels (Kirk, Gallagher, & Anastasiow, 1993).

Students who have difficulty seeing often hold books either very close to or very
far from their eyes. They may squint, rub their eyes frequently, or complain that their
eyes burn or itch. The eyes may actually be swollen, red, or encrusted. Students with
vision problems may misread material on the chalkboard, describe their vision as
being blurred, be very sensitive to light, or hold their heads at an odd angle. They may
become irritable when they have to do deskwork or lose interest if they have to fol-
low an activity happening across the room (Hunt & Marshall, 2002). Any of these
signs should be reported to a qualified school professional.

Special materials and equipment that help these students to function in regular
classrooms include large-print typewriters; software that converts printed material
to speech or to braille; personal organizers (like a Palm) that have talking appoint-
ment books or address books; variable-speed tape recorders (allowing teachers to
make time-compressed tape recordings, which speed up the rate of speech without
changing the voice pitch); special calculators: the abacus; three-dimensional maps,
charts, and models; and special measuring devices. For students with visual prob-
lems, the quality of the print is often more important than the size, so watch out
for hard-to-read handouts and blurry copies. The Instructional Materials Reference
Center of the American Printing House for the Blind (1639 Frankfort Avenue,
Louisville, KY 40206) has catalogs of instructional materials for students with visual
impairments.

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Low vision Vision limited to close objects.

Educationally blind Needing Braille materials in order to learn.

Less Prevalent Problems and More Severe Disabilities
Table 4.8 Making a Referral

1. Contact the student's parents. It is very important that you discuss the student's problems with the parents before you refer.

2. Before making a referral, check all the student's school records. Has the student ever:
   - had a psychological evaluation?
   - qualified for special services?
   - been included in other special programs (e.g., for disadvantaged children; speech or language therapy)?
   - scored far below average on standardized tests?
   - been retained?

Do the records indicate:
   - good progress in some areas, poor progress in others?
   - any physical or medical problem?
   - that the student is taking medication?

3. Talk to the student's other teachers and professional support personnel about your concern for the student. Have other teachers also had difficulty with the student? Have they found ways of dealing successfully with the student? Document the strategies that you have used in your class to meet the student's educational needs. Your documentation will be useful as evidence that will be helpful to or be required by the committee of professionals who will evaluate the student. Demonstrate your concern by keeping written records. Your notes should include items such as:
   - exactly what you are concerned about
   - why you are concerned about it
   - dates, places, and times you have observed the problem
   - precisely what you have done to try to resolve the problem
   - who, if anyone, helped you devise the plans or strategies you have used
   - evidence that the strategies have been successful or unsuccessful

Remember that you should refer a student only if you can make a convincing case that the student may have a handicapping condition and probably cannot be served appropriately without special education. Referral for special education begins a time-consuming, costly, and stressful process that is potentially damaging to the student and has many legal ramifications.


The arrangement of the room is also an issue. Students with visual problems need to know where things are, so consistency matters—a place for everything and everything in its place. Leave plenty of space for moving around the room and make sure to monitor possible obstacles and safety hazards such as trash cans in aisles and open cabinet doors. If you rearrange the room, give students with visual problems a chance to learn the new layout. Make sure the students have a buddy for fire drills or other emergencies (Friend & Bursuck, 2002).

If you decide that students in your class might benefit from special services, the first step is making a referral. How would you begin? Table 4.8 guides you through the referral process. In Chapter 12, when we discuss effective teaching, we will look at more ways to reach all your students.

Check Yourself

How can schools accommodate the needs of physically disabled students?

How would you handle a seizure in class?

What are some signs of hearing and visual impairment?

Not all students who need special accommodations in school are covered by IDEA or eligible for the services provided by the law. But these students' educational needs may be covered by Section 504 of the Vocational Rehabilitation Act of 1973. We turn to these students now.

Section 504 Protections for Students

As a consequence of the civil rights movement in the 1960s and 1970s, the federal government passed the Vocational Rehabilitation Act of 1973. Section 504 of that law prevents discrimination against people with disabilities in any program that receives federal money, such as public schools.
Through Section 504, all school age children are ensured an equal opportunity to participate in school activities. The definition of "disability" is broad in Section 504. If a student has a condition that substantially limits participation in school, then the school must develop a plan for giving that student access to education, even though the school gets no extra funds. To get assistance through Section 504, students must be assessed, often by a team, and a plan developed. Unlike IDEA however, there are fewer rules about how this must happen, so individual schools design their own procedures (Friend & Bursuck, 2002). Look at Table 4.9 to see an example of the kinds of accommodations that might be made for a student. Many of these ideas seem to be "just good teaching." But I have been surprised to see how many teachers won't let students use calculators or tape recorders because "they should learn to do it like everyone else!"

Two major groups are considered for Section 504 accommodations: students with medical or health needs such as diabetes, drug addiction, severe allergies, communicable diseases, temporary disabilities resulting from accidents, or alcoholism, and students with ADHD. We will take some time to explore the second group because teachers must spend quite a bit of time with these students.

### Students with Hyperactivity and Attention Disorders

**What Would You Say?** If a student is struggling with time management and organization issues, what kind of accommodations would you provide?

You probably have heard and may even have used the term "hyperactivity." The notion is a modern one; there were no hyperactive children 50 to 60 years ago. Such children, like Mark Twain's Huckleberry Finn, were seen as rebellious, lazy, or "fidgety" (Nyland, 2000). Today, if anything, the term is applied too often and too widely. Many student teachers in my program have classes with 5 or 6 students diagnosed as "hyperactive," and in one class, there are 10 students with that diagnosis. Actually, hyperactivity is not one particular condition; it is "a set of behaviors—such as excessive restlessness and short attention span—that are quantitatively and qualitatively different from those of children of the same sex, mental age, and SES [socioeconomic status]" (O'Leary, 1980, p. 195).

Today most psychologists agree that the main problem for children labeled hyperactive is directing and maintaining attention, not simply controlling their physical activity. The American Psychiatric Association has established a diagnostic category called attention-deficit/hyperactivity disorder (ADHD) to identify children with this problem. Table 4.10 on page 138 lists some indicators of ADHD used by this group.

Children with ADHD are not only more physically active and inattentive than other children, they also have difficulty responding appropriately and working steadily toward goals (even their own goals); and they may not be able to control their behavior on command, even for a brief period. The problem behaviors are generally evident in all situations and with every teacher. It is difficult to know how many children should be classified as hyperactive. The most common estimate is 3% to 5% of the elementary school population (Friend & Bursuck, 2002; Sagvolden, 1999). More boys

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**Table 4.9** Examples of Accommodations Under Section 504

- The types of accommodations that can be written into a Section 504 plan are almost without limit. Some accommodation may relate to physical changes in the learning environment (for example, air filters are installed to remove allergens). However, many students who have Section 504 plans have functional impairments related to their learning or behavior, and their needs are somewhat similar to those of students with disabilities. The following is a sample of instructional accommodations that could be incorporated into a Section 504 plan:
  - Seat the student nearest to where the teacher does most of his/her instruction.
  - Have the student sit next to a peer who can help as needed.
  - Seat the student away from the distractions of doorways or windows.
  - Fold assignments in half so that the student is less overwhelmed by the quantity of work.
  - Make directions telegraphic, that is, concise and clear.
  - Allow use of a calculator or tape recorder.
  - Use voice recognition software on the computer for written assignments.
  - Mark right answers instead of wrong answers.
  - Send a set of textbooks to be left at home so that the student does not have to remember to bring books from school.
  - Provide books on tape so that the student can listen to assignments instead of reading them.

If you review these items, you can see that many of them just make good instructional sense. They are effective instructional practices that help learners with special needs succeed in your classroom.

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**Section 504** A part of civil rights law that prevents discrimination against people with disabilities in programs that receive federal funds, such as public schools.

**Attention-deficit/hyperactivity disorder** Current term for disruptive behavior disorders marked by overactivity, excessive difficulty sustaining attention, or impulsiveness.
Table 4.10

Indicators of ADHD: Attention-Deficit/Hyperactivity Disorder

Do any of your students show these signs? They could be indicators of ADHD.

Problems with Inattention
- Fails to give close attention to details or makes careless mistakes
- Has difficulty sustaining attention in tasks or play activities
- Does not seem to listen when spoken to directly
- Does not follow through on instructions and fails to finish schoolwork (not due to oppositional behavior or failure to understand instructions)
- Has difficulty organizing tasks or activities
- Averts, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)
- Loses things necessary for tasks or activities
- Is easily distracted by extraneous stimuli
- Is forgetful in daily activities

Problems with Impulse Control
- Blurs out answers before questions have been completed
- Has difficulty awaiting his/her turn
- Interrupts or intrudes on others in conversations or games

Hyperactivity
- Fidgets with hands or feet or squirms in seat
- Leaves seat in classroom or in other situations in which remaining seated is expected
- Runs about or climbs excessively in situations in which it is inappropriate (in adolescents may be limited to subjective feelings of restlessness)
- Has difficulty playing or engaging in leisure activities quietly
- Talks excessively
- Acts as if "driven by a motor" and cannot remain still


than girls are identified as hyperactive. Just a few years ago, most psychologists thought that ADHD diminished as children entered adolescence, but now there are some researchers who believe that the problems can persist into adulthood (Hallowell & Ratey, 1994). Adolescence—with the increased stresses of puberty, transition to middle or high school, more demanding academic work, and more engrossing social relationships—can be an especially difficult time for students with ADHD (Taylor, 1998).

Treating and Teaching Students with ADHD

Today there is an increasing reliance on drug therapy for ADHD. In fact, from 1990 to 1998, there was a 700% increase in the production of Ritalin in the United States (Diller, 1998). Ritalin and other prescribed drugs such as Dexedrine and Cylert are stimulants, but in particular dosages they tend to have paradoxical effects on many children with ADHD: Short-term effects include possible improvements in social behaviors such as cooperation, attention, and compliance. Research suggests that about 80% of children with ADHD are more manageable when on medication. But for many there are negative side effects such as increased heart rate and blood pressure, interference with growth rate, insomnia, weight loss, and nausea (Friend & Bursuck, 2002; Panksepp, 1998; Weiss & Hechtman, 1993). In addition, little is known about the long-term effects of drug therapy. There also is no evidence that the drugs lead to improvement in academic learning or peer relationships, two areas where children with ADHD have great problems. Because students appear to improve dramatically in their behavior, parents and teachers, relieved to see change, may

Are we overusing drugs?
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assume the problem has been cured. It hasn't. The students still need special help in learning.

One approach to helping students with attention deficits is based on the behavioral principles described in Chapter 6. Long assignments may overwhelm students with attention deficits, so give them a few problems or paragraphs at a time with clear consequences for completion. Another promising approach combines instruction in learning and memory strategies with motivational training. The goal is to help students develop the "skill and will" to improve their achievement (Paris, 1988). They are also encouraged to be persistent and to see themselves as "in control" (Reid & Borkowski, 1987).

The notion of being in control is part of a new therapy strategy for dealing with ADHD, one that stresses personal agency. David Nylund (2000) describes this type of therapy that has important implications for teachers. Rather than treating the problem child, Nylund's idea is to enlist the child's strengths to conquer the child's problems—put the child in control. New metaphors for the situation are developed. Rather than seeing the problems as inside the child, Nylund helps everyone see ADHD, Trouble, Boredom, and other enemies of learning as outside the child—demons to be conquered or unruly spirits to be enlisted in the service of what the child wants to accomplish. The focus is on solutions. The steps of the SMART approach are:

- Separating the problem of ADHD from the child
- Mapping the influence of ADHD on the child and family
- Attending to the exceptions to the ADHD story
- Reframing special abilities of children diagnosed with ADHD
- Telling and celebrating the new story. (Nylund, 2000, p. xix)

As a teacher, you can look for times when the student is engaged—even short times. What is different about these times? Discover the student's strengths and allow yourself to be amazed by them. Make changes in your teaching that support the changes the student is trying to make. Nylund gives the following example: Chris (age 9) and his teacher, Ms. Baker, became partners in putting Chris in control of his concentration in school. Ms. Baker moved Chris's seat to the front of the room. The two designed a subtle signal to get Chris back on track and Chris organized his messy desk. These sound like some of the Section 504 accommodations in Table 4.9. When Chris's concentration improved, Chris received the award shown in Figure 4.2 at a party in his honor. Chris described how he was learning to listen in class: "You just have to have a strong mind and tell ADHD and Boredom not to bother you." (Nylund, 2000, p. 166). Here are suggestions that came from students working with Nyland, telling how their teachers can help them gain control:

- Use lots of pictures (visual clues) to help me learn.
- Offer us choices.
- Recognize cultural and racial identity.
- Don't just lecture—it's boring!
- Know when to bend the rules.
- Realize that I am intelligent.
- Notice when I am doing well.
- Let me walk around the classroom.
- Don't tell the other kids that I am taking Ritalin.
- Don't give tons of homework.
- More recess!
- Be patient.

The above methods should be thoroughly tested with the student before drugs are used. Even if students in your class are on medication, it is critical that they also learn the academic and social skills they will need to survive. Again, this will not happen by itself, even if behavior improves with medication (Friend & Bursuck, 2002).
Check Yourself
What is Section 504?

What is ADHD, and how is it handled in school?

We end the chapter with another group that has special needs, but is not covered by IDEA or Section 504—highly intelligent or talented students.

Students Who Are Gifted and Talented

Consider this situation, a true story.

Latoya was already an advanced reader when she entered 1st grade in a large urban school district. Her teacher noticed the challenging chapter books Latoya brought to school and read with little effort. After administering a reading assessment, the school’s reading consultant confirmed that Latoya was reading at the 5th grade level. Latoya's parents reported with pride that she had started to read independently when she was 3 years old and "had read every book she could get her hands on." (Reis et al., 2002)

In her struggling urban school, Latoya received no particular accommodations, and by 5th grade, she was still reading at just above the 5th grade level. Her 5th grade teacher had no idea that Latoya had ever been an advanced reader.

Latoya is not alone. There is a group of students with special needs that is often overlooked by the schools: the gifted and talented. In the past, providing an enriched education for extremely bright or talented students was seen as undemocratic and elitist. Now there is a growing recognition that gifted students are being poorly served by most public schools. A national survey found that more than one-half of all gifted students do not achieve in school at a level equal to their ability (Tomlinson-Keasy, 1990). In 1988, the federal government passed the Gifted and Talented Students Education Act that recognized that these students need special services, but the law did not require states to provide services that would enable students like Latoya to get an appropriate education.

Who Are These Students?

There are many definitions of gifted because individuals can have many different gifts. Remember that Gardner (1983) identified eight separate “intelligences” and Sternberg (1985) suggests a triarchic model. Renzulli and Reis (1991) have a different three-part conception of giftedness: above-average general ability, a high level of creativity, and a high level of task commitment or motivation to achieve. One of the most inclusive definitions comes from the U.S. Department of Education (1993):

Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment. These children and youth exhibit high capability in intellectual, creative, and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools. Outstanding talents are present in children and youth from all cultural groups, across all economic strata, and in all areas of human endeavor. (p. 26)

Truly gifted children are not the students who simply learn quickly with little effort. The work of gifted students is original, extremely advanced for their age, and potentially of lasting importance. These children may read fluently with little instruction by age 3 or 4. They may play an musical instrument like a skillful adult, turn a visit to the grocery store into a mathematical puzzle, and become fascinated with algebra when their friends are having trouble carrying in addition (Winner, 2000). Recent
Stories of Learning
Tributes to Teaching

Charrelle is an African American student in the third grade, on free lunch, homeless for much of the year, and much loved and supported by both parents. Her mother is a housekeeper in a local hospital. Her father “fpees burgers” (her words) at a fast-food restaurant. Now in housing in a different school zone, Charrelle still attends the school in which she began, because her mother makes the long bus ride with Charrelle, continuing on to her own job via public transportation. Charrelle is often as much as an hour late for class because of the extended bus ride, but when she arrives in her classroom, she becomes immediately absorbed in her schoolwork. Charrelle’s teacher feels the long ride seems worthwhile to Charrelle’s parents because the school has been nurturing to the family, and that Project START “may have been the icing on the cake (that kept them coming).”

Charrelle seems to be hungry, not so much for food as for knowledge. She often asks for extra schoolwork to do at home. Her current teacher calls her “a joy. I feel lucky to have her in my class. There are few children intrinsically motivated like Charrelle. . . . She’s a real big ham. She would act out anything. She’s just kind of bright and bubbly and effervescent and gregarious. . . . She writes. She loves to tell stories. She’s a good leader in a group. . . . Not as a forceful leader, but she coaches, like, ‘Well, maybe we should do this.’ She’s blown the doors off math in here. I have her well into fourth-grade math.” Charrelle’s second-grade teacher echoes, “She’s very talented in writing and reading. She is very creative, good in art, good in all subjects.” The teacher points out a piece of Charrelle’s artwork, which is permanently displayed in the school corridor.


Conceptions widen the view of giftedness to include attention to the children’s culture, language, and exceptionalities (Association for the Gifted, 2001). These newer conceptions are more likely to identify children like Charrelle in the Stories of Learning/ Tributes to Teaching feature.

What do we know about these remarkable individuals? A classic study of the characteristics of the academically and intellectually gifted was started decades ago by Lewis Terman and colleagues (1925, 1947, 1959; Holahan & Sears, 1995). This huge project is following the lives of 1,528 gifted males and females and will continue until the year 2010. The subjects all have IQ scores in the top 1% of the population (140 or above on the Stanford-Binet individual test of intelligence). They were identified on the basis of these test scores and teacher recommendations.

Terman and colleagues found that these gifted children were larger, stronger, and healthier than the norm. They often walked sooner and were more athletic. They were more emotionally stable than their peers and became better-adjusted adults than the average. They had lower rates of delinquency, emotional difficulty, divorce, drug problems, and so on. Of course, the teachers in Terman’s study who made the nominations may have selected students who were better adjusted initially.

What Is the Origin of These Gifts? For years, researchers have debated the nature/nurture question about people with extraordinary abilities and talents. As usual, there is evidence that it takes both. Studies of prodigies and geniuses in many fields document that deep and prolonged practice is necessary to achieve at the highest levels. For example, it took Newton 20 years to move from his first ideas to his ultimate contribution (Howe, Davidson, & Slobooda, 1998; Winner, 2000).

I remember listening to the early reports of Bloom’s study of talent (1982). His research team had interviewed, among others, the top tennis players in the world.
IQ tests are still seen as a reliable predictor of academic giftedness; however, there may also be other ways for students to demonstrate their special abilities.

their coaches, parents, siblings, and friends. One coach said that he would make a suggestion, and a few days later the young athlete would have mastered the move. Then the parents told how the child had practiced that move for hours on end after getting the coach's tip. So, focused, intense practice plays a role. Also, the families of prodigies tend to be child-centered and to devote hours to supporting the development of their child's gifts. Bloom's research team described tremendous sacrifices made by families: rising before dawn to drive their child to a coach in another city, working two jobs, or even moving the whole family to another part of the country to find the best teachers. The children responded to the family's sacrifices by working harder and the families responded to the child's hard work by sacrificing more—an upward spiral of investment and achievement.

But hard work will never make me a world-class tennis player or a Newton. There is a role for nature as well. The children studied by Bloom showed early and clear talent in the areas they later developed. As children, great sculptors were constantly drawing and mathematicians were fascinated with dials, gears, and gauges. Parents' investments in their children came after the children showed early high-level achievement (Winner, 2000). Recent research suggests that gifted children, at least those with extraordinary abilities in mathematics, music, and visual arts, may have unusual brain organization—which can have both advantages and disadvantages. Giftedness in mathematics, music, and visual arts appears to be associated with superior visuospatial abilities and enhanced development of the right side of the brain. Children with these gifts are also more likely not to have right-hand dominance and to have language-related problems. These brain differences are evidence that "gifted children, child prodigies, and savants are not made from scratch but are born with unusual brains that enable rapid learning in a particular domain" (Winner, 2000, p. 160).

**What Problems Do the Gifted Face?** In spite of Bloom's and Terman's findings, it would be incorrect to say that every gifted student is superior in adjustment and emotional health. In fact, gifted adolescents, especially girls, are more likely to be depressed and to report social and emotional problems (Berk, 2002). Many difficulties confront a gifted child, including boredom and frustration in school as well as isolation (sometimes even ridicule) from peers. Schoolmates may be consumed with baseball or worried about failing math, while the gifted child is fascinated with Mozart, focused on a social issue, or totally absorbed in computers, drama, or geology. Gifted children may be impatient with friends, parents, and even teachers who do not share...
their interests or abilities. Because their language is well developed, they may be seen as show-offs when they are simply expressing themselves. They are sensitive to expectations and feeling of others, so these students may be very vulnerable to criticisms and taunts. Because they are goal-directed and focused, they may seem stubborn and uncooperative. Their keen sense of humor can be used as a weapon against teachers and other students. Adjustment problems seem to be greatest for the most gifted, those in the highest range of academic ability (e.g., above 180 IQ) (Hardman, Drew, & Egan, 1999; Keogh & MacMillan, 1996; Robinson & Clinkenbeard, 1998).

**Strategies for Identifying and Teaching Gifted Students**

Identifying gifted children is not always easy and teaching them well may be even more challenging. Many parents provide early educational experiences for their children. Even very advanced reading in the early grades does not guarantee that students will still be outstanding readers years later (Mills & Jackson, 1990). In junior high and high school, some very able students deliberately earn lower grades, making their abilities even harder to recognize. Girls are especially likely to hide their abilities (Berk, 2002).

**Recognizing Gifts and Talents.** Teachers are successful only about 10% to 50% of the time in picking out the gifted children in their classes (Fox, 1981). These seven questions, taken from an early study of gifted students, are still good guides today (Walton, 1961):
- Who learns easily and rapidly?
- Who uses a lot of common sense and practical knowledge?
- Who retains easily what he or she has heard?
- Who knows about many things that the other children don't?
- Who uses a large number of words easily and accurately?
- Who recognizes relations and comprehends meanings?
- Who is alert and keenly observant and responds quickly?

Based on Renzulli and Reis's (1991) definition of giftedness, we might add:
- Who is persistent and highly motivated on some tasks?
- Who is creative, often has unusual ideas, or makes interesting connections?

Group achievement and intelligence tests tend to underestimate the IQs of very bright children. Group tests may be appropriate for screening, but they are not appropriate for making placement decisions. Many psychologists recommend a case study approach to identifying gifted students. This means gathering many kinds of information, test scores, grades, examples of work, projects and portfolios, letters or ratings from teachers, self-ratings, and so on (Renzulli & Reis, 1991; Sisk, 1986). Especially for recognizing artistic talent, experts in the field can be called in to judge the merits of a child's creations. Science projects, exhibitions, performances, auditions, and interviews are all possibilities. Creativity tests such as those described in Chapter 13 may identify some children not picked up by other measures, particularly minority students who may be at a disadvantage on the other types of tests (Maker, 1987). Remember, students with remarkable abilities in one area may have much less impressive abilities in others. In fact, there may be up to 180,000 students in American schools who are gifted and learning disabled (Davis & Rimm, 1985).

**Teaching Gifted Students.** Some educators believe that gifted students should be accelerated—moved quickly through the grades or through particular subjects. Other
GIFTED STUDENTS WITH LEARNING DISABILITIES: TWICE-EXCEPTIONAL

Here are some ideas for supporting twice-exceptional students (McCoach, Kehle, Bray, & Siegel, 2001):

- Identify these students by looking longitudinally at achievement.
- Remediate skill deficits, but also identify and develop talents and strengths.
- Provide emotional support; it is important for all students, but especially for this group.
- Help students learn to compensate directly for their learning problems, and assist them in "tuning in" to their own strengths and difficulties.

GIFTED STUDENTS WHO LIVE IN POVERTY

Health problems, lack of resources, homelessness, fears about safety and survival, frequent moves, responsibilities for the care of other family members all make achievement in school more difficult. To identify student with gifts:

- Use alternative assessment, teacher nomination, and creativity tests.
- Be sensitive to cultural differences in values about cooperative or solitary achievement (Ford, 2000).
- Use multicultural strategies to encourage both achievement and the development of racial identities.

Educators prefer enrichment—giving the students additional, more sophisticated, and more thought-provoking work, but keeping them with their age-mates in school. Actually, both may be appropriate (Torrance, 1986). Look at Table 4.11 to see examples of how content can be modified through acceleration, enrichment, sophistication, and novelty.

Many people object to acceleration, but most careful studies indicate that truly gifted students who begin primary, elementary, junior high, high school, college, or even graduate school early do as well as, and usually better than, nongifted students who are progressing at the normal pace. Social and emotional adjustment does not appear to be impaired. Gifted students tend to prefer the company of older playmates and may be miserably bored if kept with children of their own age. Skipping grades may not be the best solution for a particular student, but it does not deserve the bad name it has received (Jones & Southern, 1991; Kulik & Kulik, 1984; Richardson & Benbow, 1990). An alternative to skipping grades is to accelerate students in one or two particular subjects or allow concurrent enrollment in advanced placement courses, but keep them with peers for most classes (Robinson & Clinkenbeard, 1998). For students who are extremely advanced intellectually (for example, those scoring 160 or higher on an individual intelligence test), the only practical solution may be to accelerate their education (Hunt & Marshall, 2002; Keogh & MacMillan, 1996).

Teaching methods for gifted students should encourage abstract thinking (formal-operational thought), creativity, reading of high-level and original texts, and independence, not just the learning of greater quantities of facts. One approach that does not seem promising with gifted students is cooperative learning in mixed ability groups. Gifted students tend to learn more when they work in groups with other high ability peers (Fuchs, Fuchs, Hamlett, & Karns, 1998; Robinson & Clinkenbeard, 1998). In working with gifted and talented students, a teacher must be imaginative, flexible, tolerant, and unthreatened by the capabilities of these students. The teacher must ask: What do these children need most? What are they ready to learn? Who can help me to challenge them? Challenge and support are critical for all students. But challenging students who know more than anyone else in the school about history or music or science or math can be a challenge! Answers might come from faculty members at nearby colleges, retired professionals, books, museums, or older students. Strategies might be as simple as letting the child do math with the next grade. Other options are summer institutes; courses at nearby colleges; classes with local artists, musicians, or dancers; independent research projects; selected classes in high school for younger students; honors classes; and special-interest clubs (Mitchell, 1984).

<table>
<thead>
<tr>
<th>Table 4.11</th>
<th>Examples of How to Modify Content for Students with Gifts and Talents</th>
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<tbody>
<tr>
<td>Modification</td>
<td>Subject</td>
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<tr>
<td>--------------</td>
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</tr>
<tr>
<td>Acceleration</td>
<td>Math: Algebra in fifth grade</td>
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<tr>
<td>Enrichment</td>
<td>Math: Changing bases in number systems</td>
</tr>
<tr>
<td>Sophistication</td>
<td>Math: Mastering the laws of arithmetic</td>
</tr>
<tr>
<td>Novelty</td>
<td>Math: Probability and statistics</td>
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</table>

In the midst of providing challenge, don’t forget the support. We all have seen the ugly sights of parents, coaches, or teachers forcing the joy out of their talented students by demanding practice and perfection beyond the child’s interest. Just as we should not force children to stop investing in their talent (“Oh, Michaelangelo, quit fooling with those sketches and go outside and play”), we also should avoid destroying intrinsic motivation with heavy doses of pressure and external rewards.

Check Yourself What are the characteristics of gifted students?
Is acceleration a useful approach with gifted students?

Summary Table

**Language and Labeling**

*(pp. 106–107)*

What are the advantages of and problems with labels? Labels and diagnostic classifications of exceptional students can easily become both stigmas and self-fulfilling prophecies, but they also can open doors to special programs and help teachers develop appropriate instructional strategies.

What is person-first language? “Person-first” language (“students with mental retardation,” “students placed at risk,” etc.) is an alternative to labels that describe a complex person with one or two words, implying that the condition labeled is the most important aspect of the person. With person-first language, the emphasis is on the students first, not on the special challenges they face.

Distinguish between a disability and a handicap. A disability is an inability to do something specific such as see or walk. A handicap is an disadvantage in certain situations. Some disabilities lead to handicaps, but not in all contexts. Teachers must avoid imposing handicaps on disabled learners.

### Exceptional Students

- **Students with learning disabilities**
- **Students with emotional and behavioral disorders**
- **Students with speech or language impairments**
- **Students with hearing impairments**
- **Students with visual impairments**
- **Students with traumatic brain injury**
- **Students with autism spectrum disorders**
- **Students with gifted and talented**

### Disability

The inability to do something specific such as walk or hear.

### Handicap

A disadvantage in a particular situation, sometimes caused by a disability.

**Individual Differences in Intelligence**

*(pp. 107–115)*

What is g? Spearman suggested there is one mental attribute, which he called g or general intelligence, that is used to perform any mental test, but that each test also requires some specific abilities in addition to g. A current version of the general plus specific abilities theory is Carroll’s work identifying a few broad abilities (such as learning and memory, visual perception, verbal fluency) and at least 70 specific abilities.

What is Gardner’s view of intelligence and his position on g? Gardner contends that an intelligence is a biological and psychological potential to solve problems and create outcomes that are valued by a culture. These intelligences are realized to a greater or lesser extent as a consequence of the experiential, cultural, and motivational factors. The intelligences are: linguistic, musical, spatial, logical-mathematical, bodily-kinesthetic, interpersonal, intrapersonal, naturalist, and perhaps existential. Gardner does not deny the existence of g, but does question how useful g is as an explanation for human achievements.

What are the elements in Sternberg’s theory of intelligence? Sternberg’s triarchic theory of intelligence is a cognitive process approach to understanding intelligence. Analytic/combinatorial intelligence involves mental processes that are defined in terms of components: metacomponents, performance components, and knowledge-acquisition components. Creative/experiential intelligence involves coping with new experiences through insight and automaticity. Practical/contextual intelligence involves choosing to live and work in a context where success is likely, adapting to that context, and reshaping it if necessary. Practical intelligence is made up mostly of action-oriented tacit knowledge learned during everyday life.

How is intelligence measured and what does an IQ score mean? Intelligence is measured through individual tests (Stanford-Binet, Wechsler, etc.) and group tests (Lorge-Thorndike, Analysis of Learning Potential, School and College Ability Tests, etc.). Compared to an individual test, a group test is much less likely to yield an accurate picture of any one person’s abilities. The average score is 100. About 68% of the general population will earn IQ scores between 85 and 115. Only about 16% of the population will receive scores below 85 or above 115. These figures hold true
for White, native-born Americans whose first language is Standard English. Intelligence predicts success in school, but is less predictive of success in life when level of education is taken into account.

**Intelligence:** Ability or abilities to acquire and use knowledge for solving problems and adapting to life world.

**Fluid Intelligence:** Mental efficiency, nonverbal abilities grounded in brain development

**Crystallized Intelligence:** Ability to apply culturally approved problem-solving methods.

**Theory of Multiple Intelligences:** In Gardner's theory of intelligence, a person's eight separate abilities: logical-mathematical, verbal, musical, spatial, bodily-kinaesthetic, interpersonal, intrapersonal, and naturalist.

**Triarchic Theory of Intelligence:** A three-part description of the mental abilities (thinking processes, coping with new experiences, and adapting to context) that lead to more or less intelligent behavior.

**Insight:** The ability to deal effectively with novel situations.

**Automaticity:** The result of learning to perform a behavior or thinking process so thoroughly that the performance is automatic and does not require effort.

**Tact Knowledge:** Knowing how rather than knowing that—knowledge that is more likely to be learned during everyday life than through formal schooling.

**Mental Age:** In intelligence testing, a score based on average abilities for that age group.

**Intelligence Quotient (IQ):** Score comparing mental and chronological ages.

**Deviation IQ:** Score based on statistical comparison of individual's performance with the average performance of others in that age group.

### Ability Differences and Teaching (pp. 115-118)

What are the problems with between-class ability grouping? Academic ability groupings can have both disadvantages and advantages for students and teachers. For low-ability students, however, between-class ability grouping generally has a negative effect on achievement, social adjustment, and self-esteem. Teachers in low-achievement classes tend to emphasize lower-level objectives and routine procedures, with less academic focus. Often there are more student behavior, increased teacher stress, lowered expectations, and decreased enthusiasm. Ability grouping can promote segregation within schools.

What are the alternatives available for grouping in classes? Cross-age grouping by subject can be an effective way to deal with ability differences in a school. Within-class ability grouping, if handled sensitively and flexibly, can have positive effects, but alternatives such as cooperative learning may be better.

**Between-Class Ability Grouping/Tracking:** System of grouping in which students are assigned to classes based on their measured ability or their achievements.

**Untracking:** Redesigning schools to teach students in classes that are not grouped by ability.

**Nongraded Elementary School/The Joplin Plan:** An arrangement wherein students are grouped by ability in particular subjects, regardless of their ages or grades.

**Within-Class Ability Grouping:** System of grouping in which students in a class are divided into two or three groups based on ability in an attempt to accommodate student differences.

### Cognitive and Learning Styles (pp. 118-121)

**Distinguish between cognitive style and learning preference.** Cognitive styles are characteristic modes of perceiving, remembering, thinking, problem solving, and decision making. They reflect information-processing regularities that develop around underlying personality trends such as a tendency for deep or surface processing of information. Learning preferences are individual preferences for particular learning modes and environments. Even though cognitive styles and learning preferences are not related to intelligence or effort, they may affect school performance.

**Should teachers match instruction to individual learning styles?** Results of some research indicate that students learn more when they study in their preferred setting and manner, but most research does not show a benefit. Many students would do better to develop new—and perhaps more effective—ways to learn.

**Cognitive Styles:** Different ways of perceiving and organizing information.

**Field Dependence:** Cognitive style in which patterns are perceived as wholes.

**Field Independence:** Cognitive style in which separate parts of a pattern are perceived and analyzed.

**Impulsive:** Characterized by cognitive style of responding quickly but often inaccurately.

**Reflective:** Characterized by cognitive style of responding slowly, carefully, and accurately.

**Self-Instruction:** Talking oneself through the steps of a task.

**Learning Styles:** Characteristic approaches to learning and studying.

**Learning Preferences:** Preferred ways of studying and learning, such as using pictures instead of text, working with other people versus alone, learning in structured or unstructured situations, and so on.

### Changes in the Law: Integration and Inclusion (pp. 121-124)

**Describe the main legal requirements that pertain to students with disabilities.** Public Law 94-142 (1975) requires that each exceptional learner or student with special needs be educated in the least restrictive environment according to an individualized education program (IEP). The law also protects the rights of students with special needs and their parents. Public Law 99-457
extends the 94-142 law to preschool-age children, and IDEA, the 
Individuals with Disabilities Education Act, extends services to in-
clude transition programming for exceptional learners 16 years old 
and older. IDEA was reauthorized in 1997, and the classroom 
teacher was added to the IEP planning group.

**Regular Education Initiative:** An educational movement that 
avovates giving regular education teachers, not special education 
teachers, responsibility for teaching mildly (and sometimes moder-
ately) handicapped students.

**Individuals with Disabilities Education Act (IDEA):** Amend-
ment to PL 94-142.

**Americans with Disabilities Act (ADA):** Legislation pro-
hibiting discrimination against persons with disabilities in employ-
ment, transportation, public access, local government, and 
telecommunications.

**Least Restrictive Placement:** Placement of each child in as 
normal an educational setting as possible.

**Mainstreaming:** Teaching children with disabilities in regular 
classes for part or all of their school day.

**Full Inclusion:** The integration of all students, including those with 
severe disabilities, into regular classes.

**Individualized Education Program (IEP):** Annually revised 
program for an exceptional student, detailing present achievement 
level, goals, and strategies, drawn up by teachers, parents, specialists, 
and (if possible) the student.

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### Prevalent Problems and Mild Disabilities

(pp. 124–132)

**What is a learning disability?** Specific learning disabilities 
involve significant difficulties in the acquisition and use of listen-
ing, speaking, reading, writing, reasoning, or mathematical abili-
ties. These disorders are intrinsic to the individual, presumed to be 
the result of central nervous system dysfunction, and may occur 
across the life span. Students with learning disabilities may be-
come victims of learned helplessness when they come to believe 
that they cannot control or improve their own learning and there-
fore cannot succeed. A focus on learning strategies often helps stu-
dents with learning disabilities.

**What are the most common communication disorders?** 
Common communication disorders include speech impairments 
(articulation disorders, stuttering, and voicing problems) and oral 
language disorders. If these problems are addressed early, great 
progress is possible.

**What defines mental retardation?** Before age 18, students 
must score below about 70 on a standard measure of intelligence 
and must have problems with adaptive behavior, day-to-day inde-
pendent living, and social functioning.

**What are the best approaches for students with emotional problems?** Methods from applied behavioral analysis and direct teaching of social skills are two useful 
approaches.

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**Learning Disability:** Problem with acquisition and use of language; 
may show up as difficulty with reading, writing, reasoning, and math.

**Learned Helplessness:** The expectation, based on previous experiences 
with a lack of control, that all one's efforts will lead to failure.

**Speech Disorder:** Inability to produce sounds effectively for speaking.

**Articulation Disorders:** Any of a variety of pronunciation difficul-
ties, such as the substitution, distortion, or omission of sounds.

**Voice Disorder:** Inappropriate pitch, quality, loudness, and 
intonation.

**Mental Retardation:** Significantly below-average intellectual and 
adaptive social behavior, evident before age 18.

**Transition Planning:** Gradual preparation of exceptional 
students to move from high school into further education or training, 
employment, or community involvement.

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**Enhancing Your Expertise with Technology:** Learning about Learning Disabilities

(p. 133)

LD Online [www.ldonline.org](http://www.ldonline.org)

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**Other Useful Websites**

A collection of child development websites
[http://www.ume.main.edu/~cofed/ecol/guide.html](http://www.ume.main.edu/~cofed/ecol/guide.html)

Listing of technical assistance documents from the Office of 
Special Education [http://www.state.sd.us/state/executive/deca/special/taguide.htm](http://www.state.sd.us/state/executive/deca/special/taguide.htm)

Introduction to multiple intelligences
[http://edweb.gsln.org/edrel.mi.intro.html](http://edweb.gsln.org/edrel.mi.intro.html)

Project Zero [http://pzweb.harvard.edu](http://pzweb.harvard.edu)

Teaching to the 7 Multiple Intelligences
[http://nt1.iols.net/users/borlaart/CRPWEBPG.HTM](http://nt1.iols.net/users/borlaart/CRPWEBPG.HTM)

National Education Association's Policy on Inclusion

IDEA law (Individuals with Disabilities Education Act)

Profiles of Children with Disabilities

Disability-Related Resources on the Web
[http://www.thearc.org/misc/dislinkin.html](http://www.thearc.org/misc/dislinkin.html)

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**Organizations**

The Office of Special Education: You can find information on new legis-
lation and new resources on this site. This is an excellent general re-
source. [http://teach.virginia.edu/curry/dept/ciss/ose/new.html](http://teach.virginia.edu/curry/dept/ciss/ose/new.html)

The National Academy of Child Development (NACD): An interna-
tional organization of parents and professionals dedicated to helping
children and adults reach their full potential. The site includes resources for parents and links to research articles.

http://www.nacd.org/

National Association for Attention Deficit Disorder
http://www.add.org/

Learning Disabilities Association http://www.ldanati.org/

Children and Adults with Attention Deficit Disorders (C.H.A.D.D.).
http://chadd.org/

To take a learning styles test, go to: http://www2.ncsu.edu/unity/lockers/users/f/felder/public/ILSdir/ilsweb.html

To take an intelligence test, go to either: http://www.iqtest.com/
http://www.queendom.com/tests/iq/index.html

■ Less Prevalent Problems and More Severe Disabilities (pp. 133–136)

How can schools accommodate the needs of physically disabled students? If the school has the necessary architectural features, such as ramps, elevators, and accessible rest rooms, and if teachers allow for the physical limitations of students, little needs to be done to alter the usual educational program. Identifying a peer to help with movements and transitions can be useful.

How would you handle a seizure in class? Do not restrain the child's movements. Lower the child gently to the floor, away from furniture or walls. Move hard objects away. Turn the child's head gently to the side, put a soft coat or blanket under the student's head, and loosen any tight clothing. Never put anything in the student's mouth. Find out from the student's parents how the seizure is usually dealt with. If one seizure follows another and the student does not regain consciousness in between or if the seizure goes on for more than 5 minutes, get medical help right away.

What are some signs of hearing and visual impairment? Signs of hearing problems are turning one ear toward the speaker, favoring one ear in conversation, or misunderstanding conversation when the speaker's face cannot be seen. Other indications include not following directions, seeming distracted or confused at times, frequently asking people to repeat what they have said, mispronouncing new words or names, and being reluctant to participate in class discussions. Take note particularly of students who have frequent earaches, sinus infections, or allergies. Holding books very close or far away, squinting, rubbing eyes, misreading the chalkboard, and holding the head at an odd angle are possible signs of visual problems.

■ Cerebral Palsy: Condition involving a range of motor or coordination difficulties due to brain damage.

Spasticity: Overly tight or tense muscles, characteristic of some forms of cerebral palsy.

Epilepsy: Disorder marked by seizures and caused by abnormal electrical discharges in the brain.

Generalized Seizure: A seizure involving a large portion of the brain.

Absence Seizure: A seizure involving only a small part of the brain that causes a child to lose contact briefly.

Low Vision: Vision limited to close objects.

Educationally Blind: Needing Braille materials in order to learn.

■ Section 504 Protections for Students (pp. 136–140)

What is Section 504? Section 504 is a part of the Vocational Rehabilitation Act of 1973 that prevents discrimination against people with disabilities in any program that receives federal money, such as public schools. Through Section 504, all school-age children are ensured an equal opportunity to participate in school activities. The definition of “disability” is broad in Section 504.

What is ADHD and how is it handled in school? Attention-deficit/hyperactivity disorder (ADHD) is the term used to describe individuals of any age with hyperactivity and attention difficulties. Use of medication to address ADHD is controversial, but currently on the rise. For many students there are negative side effects. In addition, little is known about the long-term effects of drug therapy. There also is no evidence that the drugs lead to improvement in academic learning or peer relationships. Two promising approaches are behavior modification and techniques that combine instruction in learning and memory strategies with motivational training. The SMART approach that focuses on the abilities of children in another possibility.

Section 504: A part of civil rights law that prevents discrimination against people with disabilities in programs that receive federal funds, such as public schools.

Attention-Deficit/Hyperactivity Disorder: Current term for disruptive behavior disorders marked by overactivity, excessive difficulty sustaining attention, or impulsiveness.

■ Students Who Are Gifted and Talented (pp. 140–145)

What are the characteristics of gifted students? Gifted students learn easily and rapidly and retain what they have learned; use common sense and practical knowledge; know about many things that the other children don't; use a large number of
words easily and accurately; recognize relations and comprehend meaning; are alert and keenly observant and respond quickly; are persistent and highly motivated on some tasks; and are creative or make interesting connections. Teachers should make special efforts to support underrepresented gifted students—girls, students who also have learning disabilities, and children living in poverty.

Is acceleration a useful approach with gifted students? Many people object to acceleration, but most careful studies indicate that truly gifted students who are accelerated do as well as, and usually better than, nongifted students who are progressing at the normal pace. Gifted students tend to prefer the company of older playmates and may be bored if kept with children their own age. Skipping grades may not be the best solution for a particular student, but for students who are extremely advanced intellectually (with a score of 160 or higher on an individual intelligence test), the only practical solution may be to accelerate their education.

Gifted Student: A very bright, creative, and talented student.
Passing the PRAXIS™

Chapter 4 reflects many of the professional standards created by the Interstate New Teacher Assessment and Support Consortium (INTASC). These standards form the basis of the PRAXIS II™ and state-created teacher licensure exams.

This chapter opens with what is often the singular event of the school year: the release of standardized test scores to teachers, parents, and students. Hidden within rows and columns of statistics are much of what veteran teachers know about learner differences. If we could work backwards in time over the school year, we would see thousands of decisions and actions based on knowledge of intelligence, academic ability, grouping practices, learning disabilities, giftedness, creativity, physical disabilities, and state and federal legislation. These decisions, of course, were influenced by experience and reflection, but even the newest member of the profession can possess the basic knowledge to make sound decisions most of the time.

TIPS FOR PRAXIS II™

Explain the effects of legislation on public education:
- Americans with Disabilities Act
- Individuals with Disabilities Act
- Section 504
- Individualized Education Plans
- Inclusion, Mainstreaming, and Least Restrictive Environment

Understand views of intelligence and describe its measurement:
- Types of intelligence tests and their uses
- Multiple intelligences
- Interpreting intelligence scores
- Modifications to testing

Accommodate the needs of students with exceptionalities:
- Attention-Deficit/Hyperactivity Disorder
- Visual, speech, and physical difficulties
- Learning disabilities
- Mental retardation

RELATED TOPICS
- Standardized testing (Chapter 14)
- Effective teaching in inclusive classrooms (Chapter 12)
- Ethnic and racial differences in school achievement (Chapter 5)
- Creating culturally compatible classrooms (Chapter 5)

STANDARDS AND LICENSURE APPENDIX: PRAXIS II™ and INTASC

Refer to the Appendix at the end of the book for detailed correlations to PRAXIS II™ exam topics and INTASC Standards addressed in this text.

Insights about Job Interview Questions: What Would You Say?

1. Describe a learning activity that you have planned for a class and say how you have accommodated individual learning styles or needs.

2. If a student is struggling with time management and organizational issues, what kind of accommodations would you provide?

3. We have been having some heated debates in this district about ability grouping and tracking. Where do you stand on those issues?

Your Teaching Portfolio: Teaching Resources

- Use Table 6.6 "Encouraging Language Development" to generate ideas for developing students' language and add these to your Portfolio.
- For your Portfolio, develop a lesson plan that appropriately uses Gardner's work on multiple intelligences.
- Add Table 4.8, "Making a Referral" to your Portfolio.

- Add Tables 4.3, 4.4, 4.5, 4.6, 4.7, and 4.8 to your file of Teaching Resources.

Video Workshop Extra

If the Video Workshop package was included with your textbook, go to Chapter 4 of the Companion Website (www.ablongman.com/woolfolk) and click on the Video Workshop button. Follow the instructions for viewing Video Clip 3: Individual Differences. Consider this information along with what you've read in Chapter 4 while answering the following questions:

1. What are these teachers doing, or what should they be doing, to adapt the lesson for students with varying learning styles?

2. How does this method of teaching allow for the needs of gifted students as well as learning challenged students?

Use the CD-ROM included in the back of your textbook to launch the "Becoming a Professional" website. The website features advice on preparing for teacher certification exams, help with getting your first job, and resources to help you perform your job well from the first day forward.
Here is how some practicing teachers responded to the teaching situation presented at the beginning of this chapter about discussing IQ scores with parents.

**Kelly L. Hoy**  
Third Grade Teacher, Faber Elementary School, Dunellen, New Jersey

Disclosing individual information about standardized tests is always a ticklish problem. Of course, parents want to know as much as they can about their children, but there are dangers of misinterpreting or misusing information, categorizing and stereotyping children, and individual comparisons. I would be very careful about disclosing the specifics of IQ test scores to parents.

I certainly would meet with the parents who have written to explain the reasons for IQ testing in our school. Tests are aids to teachers to help us understand how to deal more effectively with our students—to challenge them, to help them, and to have high, but realistic expectations of them. For those parents who persist in wanting to know the results of an IQ test, in an individual conference I would sketch the meaning of IQ and emphasize the notion of multiple intelligences. I would avoid simple numbers and gross indices such as "your child has an IQ of 115." Rather, I would focus on the strengths of the student and I discussed the student's intelligence profile. All of my explanations would be in general terms, such as "your child is better than most of his peers in coping with new experiences, but about average in solving abstract word problems." Again, I would emphasize the positive and use other results to provide suggestions to parents about what they could do to help in areas in which the student seemed less advanced.

**Jeff D. Horton**  
Seventh–Twelfth Grade Teacher, Colton School, Colton, Washington

For the most part, intelligence testing can give some information about groups of students. It also can tell where individual students are positioned compared to a group. However, these tests are usually not a good instrument for determining how "smart" a student is or can be. When presenting intelligence test scores to parents, it is important to be clear about what the information does and does not say. Parents should also be informed that they will be comparing their son's or daughter's score(s) against a group, not against individual students. This point is very important. Often teachers will be asked to compare one student's work with that of another student. This should never be done. Each student is unique and has a variety of abilities and limitations. Teachers must look at the individual abilities, skills, and knowledge of the student being assessed, as well as that student's effort in the subject(s) being taught. If the parent wants to see the actual scores, it may be wise to have the school's counselor or an administrator available to help explain the results.

**Thomas W. Newkirk**  
Eighth Grade English Teacher, Hamilton Heights Middle School, Arcadia, Indiana

Reports in regard to the success of my students and especially of my advisory students are important and deserve my full attention. Hopefully such reports, together with my own observations and the observations of my colleagues, give me insight in helping my students realize their potential. Obviously, the more information I have, the more insight I am likely to have, and I would try to avoid basing any judgment on a single observation or report.

When I met with the parents to discuss their child's achievement, I would review the types of questions asked on the test, share my own opinions based upon daily observations, and emphasize that test results are only one measure of intelligence.

**Amy Neal**  
Ninth Grade Teacher, Katy High School, Katy, Texas

After I read the test results, I would call each parent. I would arrange a time for them to come to the school to meet with me and their child's guidance counselor. At that meeting, we would discuss the results of the test and the validity of the test. I would explain to the parents that as a special education teacher, I use intelligence tests as a guide to a student's intellectual ability, but the scores are not a measure of "how smart a student really is."

**Elizabeth Chouinard**  
Fourth Grade Teacher, MacGregor Elementary School, Houston, Texas

I would cautiously analyze the test results and compare them to other information on the child, such as performance on other tests and classroom experiences. I would share the test results with parents of the children involved. However, I would caution them about possible sources of error in testing. I would also share other pertinent information with the parents that might present a more accurate rating of their child's intelligence level.

Go to the Companion Website (www.ablongman.com/woolfolk) for additional case studies including audio and video cases, and examples of student work.