- Encourage equal participation in all classes. One demanding but extremely effective technique is to call on everyone in your classes individually and by name, regardless of whether their hands are raised (Kauchak & Eggen, 2012).
- Make an effort to present examples of men and women in nonstereotypical roles, such as women who are engineers and men who are first-grade teachers.
- Encourage girls to pursue science-related careers and boys to consider careers in nontraditional male fields, such as nursing and teaching.
- Talk to parents—and particularly mothers—and remind them to be careful about how they talk to their daughters about careers in math-related fields. Let's see how one high school math teacher addresses this problem.
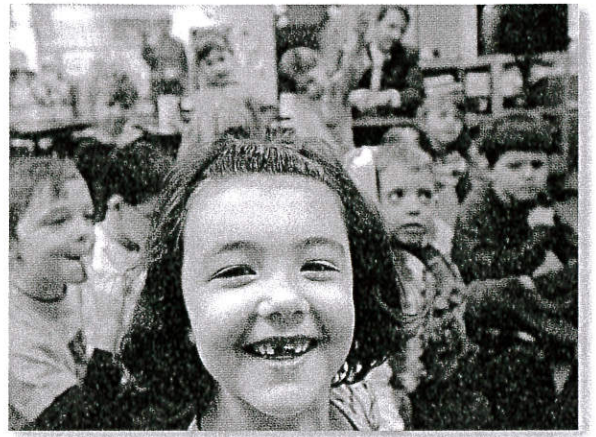


Effective teachers are sensitive to gender differences in the classroom and make a conscious effort to involve all students.

When I meet my parents at open house, one of the things that I emphasize is the importance of avoiding negative comments about math, such as, "Well, I was never very good at math either." It almost gives the girls in my class an excuse for not doing well. Then, I reemphasize it during parent–teacher conferences. My dad used to say to me, "None of this 'Math isn't for girls' stuff in this house," when I was growing up, and it made a huge difference. I never considered the possibility that math wasn't a field for me because I was a girl. (Nicole Shantz, Personal Communication, November 26, 2012)

The powerful influence that teachers can have on students is captured in this remembrance from a 42-year-old female math professor:

It was the first time I had algebra, and I loved it. And then, all of a sudden, I excelled in it. And the teacher said, "Oh no, you should be in the honors course," or something like that. So, there's somebody who definitely influenced me because I don't think I ever even noticed. I mean, I didn't care one way or the other about mathematics. It was just something you had to do. I remember she used to run up and down the aisle. She was real excited. . . . She said, "Oh, you gotta go in this other class. You gotta." And she kind of pushed a little bit, and I was willing to be pushed. (Zeldin & Pajares, 2000, p. 232)

The student ended up majoring in math and ultimately became a math professor. When teachers believe in their students, students start believing in themselves. No one is suggesting that boys and girls are, or should be, the same. Nevertheless, you should strive to provide the same academic opportunities and encouragement for all your students.

## Check Your Understanding

3.1. Explain how society influences gender differences in our students.

3.2. How should teachers respond to gender differences?

For feedback, go to the appendix, *Check Your Understanding*, located in the back of this text.

Ch.3 cont.

## Learners with Exceptionalities

In our country more than 6.5 million students are diagnosed as having **exceptionalities**, learning or emotional needs that result in their requiring special help to succeed and reach their full potential. Most get help in general education classrooms, which means you will, without question, work with these students when you begin your teaching career (Samuels, 2010). How will exceptionalities influence your teaching? Let's look at one teacher's experience.

Celina Curtis, a beginning first-grade teacher in a large elementary school, has survived her hectic first weeks. She is beginning to feel comfortable, but at the same time, some things are bothering her.

"It's kind of frustrating," she admits to Clarisse, a veteran who has become her friend and confidante. "I think I'm teaching, but some of the kids just don't seem to get it.

"For instance, there's Rodney. You've seen him on the playground. He's cute, but his engine is stuck on fast. I can barely get him to sit in his seat, much less work. The smallest distraction sets him off. He can usually do the work if I can get him to stick to it, but it's tough. I've talked to his mother, and he's the same way at home.

"Then there's Amelia; she's so sweet, but she simply doesn't get it. I've tried everything under the sun with her. I explain it, and the next time, it's as if it's all brand new. I feel sorry for her, because I know she gets frustrated when she can't keep up with the other kids. When I work with her one-on-one, it seems to help, but I don't have enough time to spend with her. She's falling farther and farther behind."

"Maybe it's not your fault. You're supposed to do your best, but you're going to burn yourself out if you keep this up," Clarisse cautions. "Check with one of the special ed teachers. Maybe these students need some extra help."

When you begin your teaching career, you will have experiences similar to Celina's. You will have students like Rodney and Amelia, both of whom may have an exceptionality, which means they need special help to succeed in school. And you may also have students who are **gifted and talented**, learners with abilities at the upper end of the continuum who require support beyond general education classroom instruction to reach their full potential.

That's why we're introducing you to the study of students with exceptionalities at this early point in your teacher preparation program. In today's schools almost 1 of 10 students has some type of exceptionality that requires extra help (Hardman et al., 2011). And the trend is to place more and more of these students in general educational settings instead of segregated facilities. In 2009, for example, 95% of **students with exceptionalities** were educated in general education schools (National Center for Education Statistics, 2011d).

The terms *children with exceptionalities, students with special needs,* and *individuals with* **disabilities** have all been used to describe students needing additional help to reach their full potential, and you may encounter any of them when you begin teaching. Notice that in these terms, *children, students,* and *individuals* come first. This "people-first" mind-set emphasizes that, foremost, these individuals are people like all of us, and they deserve to be treated with the same care and respect.

Because it plays an important role in understanding and helping students with exceptionalities, we begin by examining the concept of *intelligence.*

## Intelligence

We all know people we think are "sharp," because they're knowledgeable, perceptive, or learn new ideas quickly and easily. These are intuitive notions of **intelligence**, which experts define as the ability to acquire and use knowledge, solve problems and reason in the abstract, and adapt to new situations in our environments (Garlick, 2010; Gläscher et al., 2010).

The ability to benefit from experience is a simple way to think about intelligence. For instance, if we could hypothetically give two people exactly the same set of experiences, the more intelligent of the two will derive more benefit from them. Intelligence is important for all of us involved in teaching, because it relates to important aspects of learning, such as success in school and behavior problems. For example, high intelligence correlates with academic achievement, whereas low intelligence correlates with higher incidence of school problems and delinquent behavior (Laird, Pettit, Dodge, & Bates, 2005).

Experts suggest that you're likely to have students with intelligence test (IQ) scores ranging from 60 or 70 to 130 or 140 in an average, heterogeneously grouped classroom (Hardman et al., 2011). This range is so great that students at the lower end would be classified as intellectually handicapped, whereas students at the upper end might be considered gifted and/or talented. You're likely to encounter the full spectrum of ability levels when you begin teaching.

## Changes in Views of Intelligence: Multiple Intelligences

Historically, researchers believed that intelligence was a single trait and that all people could be classified along a single continuum of "general" intelligence (Salvia, Ysseldyke, & Bolt, 2010). Thinking has changed, however, and many researchers now believe that intelligence is composed of several distinct dimensions that may occur alone or in various combinations in different individuals. In other words, we can be "smart" in many ways instead of just one.

Howard Gardner, a psychologist who did groundbreaking work in this area, is one of the best-known proponents of this idea (Gardner, 1983; Gardner & Moran, 2006). He proposed a theory of **multiple intelligences**, which suggests that overall intelligence is composed of eight relatively independent dimensions (see Table 3.1).

Gardner's theory makes sense intuitively and is popular with teachers (Cuban, 2004a). We all know people who don't seem particularly "sharp" analytically but who excel in getting along with others, for example. This ability serves them well, and in some instances, they're more successful in life than their "brighter" counterparts. Others are extraordinary athletes or accomplished musicians. Gardner describes these people as high in interpersonal, bodily-kinesthetic, and musical intelligence, respectively.

On the other hand, Gardner's work has a number of vocal critics. For instance, some caution that the theory and its applications have not been validated by research and have no support from research in cognitive neuroscience (Waterhouse, 2006). Others disagree with the assertion that abilities in specific domains, such as music, qualify as separate forms of intelligence (McMahon, Rose, & Parks, 2004). Some even argue that it isn't truly a theory (Chen, 2004).

Also, despite the theory's popularity with teachers, most classrooms focus heavily on the linguistic and logical-mathematical dimensions of Gardner's theory and virtually ignore the others (Seider, 2009). To develop the other dimensions,

| TABLE 3.1 | Gardner's Dimensions of Intelligence | |
| --- | --- | --- |
| **Dimension** | **Description** | **Individuals Who Might Be High in This Dimension** |
| Linguistic intelligence | Sensitivity to the meaning and order of words and the varied uses of language | Poet, journalist |
| Logical-mathematical intelligence | The ability to handle long chains of reasoning and to recognize patterns and order in the world | Scientist, mathematician |
| Musical intelligence | Sensitivity to pitch, melody, and tone | Composer, violinist |
| Spatial intelligence | The ability to perceive the visual world accurately and to re-create, transform, or modify aspects of the world on the basis of one's perceptions | Sculptor, navigator |
| Bodily-kinesthetic intelligence | A fine-tuned ability to use the body and to handle objects | Dancer, athlete |
| Interpersonal intelligence | An understanding of interpersonal relations and the ability to make distinctions among others | Therapist, salesperson |
| Intrapersonal intelligence | Access to one's own "feeling life" | Self-aware individual |
| Naturalist intelligence | The ability to recognize similarities and differences in the physical world | Biologist, anthropologist |

Source: Based on H. Gardner and Hatch (1989) and Chekles (1997).

students need to explore and practice them. For example, if well-organized and carefully supervised, cooperative learning activities can help students develop interpersonal intelligence, participation in sports or dance can improve bodily-kinesthetic abilities, and playing in a band or singing in choral groups can improve musical intelligence.

## Emotional Intelligence

Have you ever had a person make a rude remark to you and thought, "I'd love to tell him [or her] where to go!"? But you don't. In restraining yourself, you might be demonstrating **emotional intelligence**, the ability to manage our emotions so we can cope with our world and accomplish goals. It's another important form of intelligence and includes factors such as:

- Controlling impulses to behave in socially unacceptable ways (controlling the impulse to tell the other person where to go)
- Managing negative emotions (able to forget about the rude remark after initially feeling angry about it)
- Behaving in socially acceptable ways (deciding to talk calmly to the person about the remark, or simply leaving)

Students who can manage their emotions are happier, better adjusted, and better able to make and keep friends than those who can't. In addition, they're also better students, because they're able to focus their emotions on the learning task (Berk, 2013).

As we would expect, children differ considerably in their ability to control and regulate their emotions. Older children are better at it than their younger counterparts, and language plays a role, providing a tool they can use to examine and monitor their emotions (e.g., "I know I feel badly about how I did on the test, but I'll try to study harder for the next one."). Boys have a harder time than girls controlling negative emotions, and consequently boys tend to act out more (Berk, 2012).

You can help your students develop emotional self-regulation by openly talking about emotions and discussing strategies for dealing with them. In the process, you can remind students that feeling a variety of emotions is completely normal, but some ways of responding to them are better than others. For example, feeling hurt and angry is normal, but responding calmly is much better than lashing out.

Using literature in your teaching also offers opportunities to develop emotional intelligence. As you read and discuss stories, you can ask questions about characters' motives, feelings, and actions. Our goal is for students to become aware of their own emotions, how they influence our behavior, and ultimately how to control them, so they don't control us. If we can help our students understand and control their emotions, they will have acquired an ability that will serve them well throughout their lives.

## Learning Styles

To understand something, do you need to "see" it? Or hear it described? Or touch it? People often describe themselves as visual, verbal, or tactile learners. These descriptions reflect your unique **learning style**, or your preferred way of learning, studying, or thinking about the world.

Learning styles also influence classroom teaching, as Chris Burnette discovers.

### Teaching and You

How do you like to learn? When do you learn best? Do you prefer to study in the morning or later in the day? Do you like to study alone or with other people? Do you prefer to read about a topic or hear someone lecture about it? How will your learning preferences differ from the students you'll teach?

One thing Chris remembers from his methods classes is the need for variety. He has been primarily using large-group discussions in his middle school social studies classes, and most of the students seem to respond okay. But others seem uninterested, and their attention often drifts.

Today, Chris decides to try a small-group activity involving problem solving. The class has been studying the growth of American cities, and he wants the students to think about solutions to some of the problems of big cities. As he watches the groups interact, he's surprised at what he sees: Some of the students who are most withdrawn in whole-class discussions are leaders in the groups.

"Great!" he thinks. But at the same time, he notes that some of his more active students are sitting back and not getting involved.

Each of us approaches learning differently, but which of these differences are important? One approach to learning styles distinguishes between deep and surface approaches to processing information (C. Evans, Kirby, & Fabrigar, 2003). For instance, when you study a new idea, do you ask yourself how it relates to other ideas, what examples of the idea exist, and how it might apply in a different context? If so, you're using a deep-processing approach. On the other hand, if you simply memorize the definition, you're using a surface approach. As you might expect, deep-processing approaches result in higher achievement if subsequent tests focus on understanding and application, but surface approaches can succeed if tests emphasize learning and memorizing facts.

Other perspectives on learning styles contrast analytic and holistic, and visual versus verbal approaches to learning. Analytic learners tend to break learning tasks into their component parts, whereas holistic learners attack problems more globally (Norenzayan, Choi, & Peng, 2007). Visual learners prefer to see ideas, whereas verbal learners prefer hearing them (Mayer & Massa, 2003). In general, an analytic approach is more beneficial for learning and develops as students mature. You can encourage this learning style with the kinds of questions you ask and the kinds of assignments, tests, and quizzes you give. You can also present information in both visual and verbal forms to capitalize on differences in this area.

Like multiple intelligences, these preferences or "styles" make intuitive sense. We've all heard people say, "I'm a morning person" or "Don't try to talk to me until I've had my cup of coffee." Many people describe themselves as visual, verbal, or tactile. And, as with multiple intelligences, the idea of learning styles is very popular with teachers.

The idea is highly controversial, however. Learning style advocates claim the match results in increased achievement and improved attitudes (Lovelace, 2005); critics counter by questioning the validity of the tests used to measure learning styles (Pashler, McDaniel, Rohrer, & Bjork, 2008). They also cite research indicating that attempts to match learning environments to learning preferences have resulted in no increases in achievement and, in some cases, even decreases.

Most credible experts in the field question the wisdom of teachers' allocating energy and resources to accommodate learning styles.

> Like other reviewers who pay close attention to the research literature, I do not see much validity in the claims made by those who urge teachers to assess their students with learning style inventories and follow with differentiated curriculum and instruction. First, the research bases encouraging these urgings are thin to nonexistent. Second, a single teacher working with 20 or more students does not have time to plan and implement much individualized instruction. (Brophy, 2010, p. 283)

Others speak more strongly. "I think learning styles represents one of the more wasteful and misleading pervasive myths of the last 20 years" (Clark, 2010, p. 10).

While little evidence supports attempts to match instruction to students' learning style, the concept of *learning style* does have implications for us as teachers. First, it reminds us that we should vary our instruction, because no instructional strategy works for all students, or even the same students all the time (Brophy, 2010). Second, we should help our students understand how they

This discussion addresses the fourth item in *This I Believe*, "It is important for me to adapt my instruction to the individual learning styles of my students." This statement is not supported by credible research. Varying instruction is important, but little evidence supports the contention that achievement is increased by attempting to match instruction to each child's individual learning style. This would create enormous logistical problems and would also fail to teach students to broaden and develop their different learning abilities.

learn most effectively, something that they aren't initially good at (Berk, 2012). Third, our students differ in ability, motivation, background experiences, needs, and insecurities. The concept of learning style can sensitize us to these differences, help us treat our students as individuals, and do everything we can to help each one learn as much as possible.

Next we discuss special education and our country's efforts to best serve students with exceptionalities.

## Special Education and the Law

Historically, students with exceptionalities were separated from their peers and placed in segregated classrooms or schools. Unfortunately, instruction in these settings was often inferior, achievement was no better than in general education classrooms, and students didn't learn the social and life skills they needed to function effectively in the outside world (Heward, 2013).

To address these issues, the U.S. Congress passed Public Law 94–142, the Individuals with Disabilities Education Act (IDEA), in 1975. The guarantee of a free and appropriate public education for all students with exceptionalities was central to this act. IDEA, combined with later amendments, provides the following guidelines for working with students having exceptionalities:

- Guarantees an appropriate education for all students with exceptionalities
- Identifies the needs of students with exceptionalities through assessment that doesn't discriminate against any students
- Involves parents in decisions about each child's educational program
- Creates an environment that doesn't restrict learning opportunities for students with exceptionalities
- Develops an individualized education program (IEP) of study for each student

Since 1975, Congress has amended IDEA three times to ensure that all children with disabilities are protected and provided with a free appropriate public education (Sack-Min, 2007). For example, one amendment extended the provisions of IDEA to children aged 3 through 5 and held states accountable for locating young children who need special education services. A second helps ensure protection against discrimination in testing, requires districts to keep confidential records of each child, and shares them with parents on request. The third amendment requires schools to establish methods to reduce the number of students from culturally and linguistically diverse backgrounds who are inappropriately placed in special education, likely a response to the fact that students who are culturally and linguistically diverse are overrepresented in special education classes. This amendment also provides for procedures that allow districts to remove students from the classroom who "inflict serious bodily injury" on others.

### The Move Toward Inclusion

As educators realized that segregated classes and services weren't meeting the needs of students with exceptionalities, they searched for alternatives. **Mainstreaming**, the practice of placing students with exceptionalities in general education classrooms, often for selected activities only, was their first effort. Mainstreaming began the move away from segregated services, but it had problems. Students with exceptionalities were often placed in general education classrooms without adequate support and services, and the results were unsatisfactory, however, as one student's experience documents:

When I got to sixth grade, they put me in regular ed. classes. The work was way too hard, and the teachers did not try to help me. They went way too fast, and I got confused. I got scared and angry. I needed the help, but none of the teachers seemed to care. They didn't pay attention to me. No one ever noticed that I couldn't keep up with the work they were giving me. They were too busy teaching. (Schrimpf, 2006, p. 87)

To remedy problems identified with mainstreaming, educators developed an alternative approach to educating students with exceptionalities, now commonly called **inclusion**, a comprehensive approach to educating students with exceptionalities that incorporates a total, systematic, and coordinated web of services (Heward, 2013). Inclusion has three components:

- Include students with special needs in a general education school campus.
- Place students with special needs in age- and grade-appropriate classrooms.
- Provide special education support within the general education classroom.

Inclusion is broader than mainstreaming, and it means that as a general education classroom teacher you will have students with exceptionalities in your classroom, with the support of special educators to assist you with these students.

## Individualized Education Program

To ensure that inclusion works and that learners with exceptionalities don't get lost in general education classrooms, a team of educators prepares an **individualized education program (IEP)** for every student who has an exceptionality. As a general education classroom teacher, you will be part of this team, which will also include a special education specialist, resource professionals, and parents. An IEP includes:

- An assessment of the student's current level of performance
- Long- and short-term objectives
- Strategies to ensure that the student is making academic progress
- Schedules for implementing the plan
- Criteria for evaluating the plan's success

Teachers and other professionals work with parents to design an IEP that meets each student's individual learning needs.

The IEP provides sufficient detail to guide general education classroom teachers and special education personnel as they implement the plan. Signatures from each participant indicate that all were consulted and agree on the recommended course of action.

IEP conferences are a source of comfort for parents who have seen their child struggle again and again in school. One mother wrote this note to her child's teacher:

Thank you so much for attending the IEP. Because of your advocacy, concern, and belief in Sam, the IEP was a nice experience for us. To be surrounded by people who see that all is good and possible in Sam was just wonderful. Thanks. (Kostelnik, Onaga, Rohde, & Whiren, 2002, p. 114)

An **individualized family service plan (IFSP)** provides the same type of planned care as an IEP but targets developmentally delayed preschool children. A product of PL 99-457, an IFSP provides for early intervention and care for children from birth to age 2. It differs from an IEP in two important ways

(Heward, 2013). First, it targets the child's family and provides supplemental services to the family as well as the child. Second, it includes interventions and services from a variety of health and human services agencies in addition to education; these could include physical therapy as well as family training and counseling.
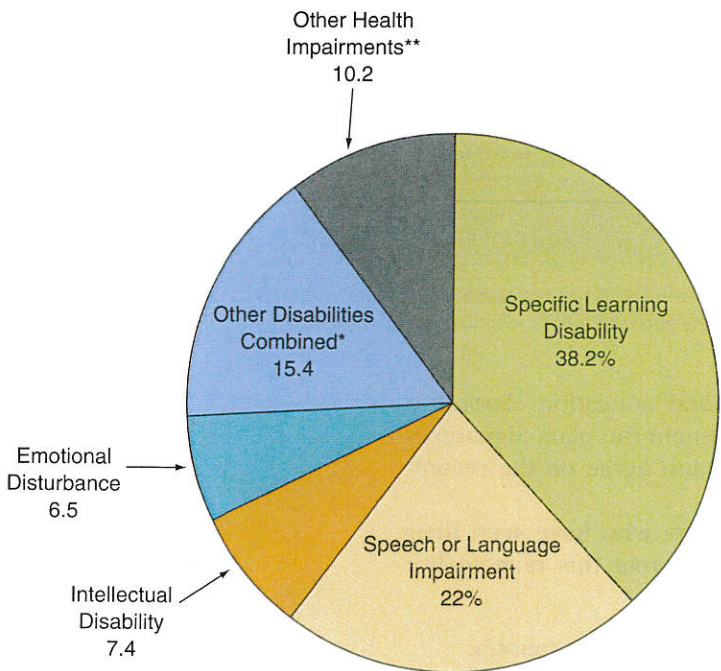
## Categories of Exceptionalities

More than 6 million students in the United States are enrolled in special education programs, two thirds of them for relatively minor problems (Heward, 2013). Approximately 1 of 10 students in a typical school receives some form of special education services; most of these occur in a general education classroom for a significant portion of the school day.

Federal legislation has created categories to identify students eligible for special education services, but the use of categories is controversial. Advocates argue that categories provide a common language for professionals and encourage specialized instruction that meets each student's specific needs (Heward, 2013). Opponents claim that categories are arbitrary, that many differences exist within each, and that categorizing students encourages educators to treat them as labels instead of people. Despite the controversy, these categories are widely used, so they should be part of your professional knowledge base.

IDEA lists 13 different categories of disabilities, outlined in Figure 3.6. More than three fourths of the students with exceptionalities fall into four categories:

- learning disabilities
- communication disorders (speech or language impairment)
- intellectual disabilities
- behavior disorders/emotional disturbance

**Learning disabilities**, the most frequently occurring, involve difficulties in acquiring and using listening, speaking, reading, writing, reasoning, or mathematical abilities. **Communication disorders** interfere with students' abilities to receive and understand information from others and to express their own ideas or questions. **Intellectual disabilities**, which used to be called *mental retardation,* include limitations in intellectual functioning, as indicated by difficulties in learning, and problems with adaptive skills, such as communication, self-care, and social interaction. This category relates to our earlier discussion of intelligence. Children with intellectual disabilities fall toward the lower end of the intelligence continuum.

**Behavior disorders** involve the display of serious and persistent age-inappropriate behaviors that result in social conflict, personal unhappiness, and school failure. This category relates to our earlier discussion of emotional intelligence. Learners with behavior disorders

**FIGURE 3.6** Percentage of Students Ages 6 to 21 Receiving Special Education Services Under the Federal Government's Disability Categories



Other Health Impairments** 10.2
Other Disabilities Combined* 15.4
Emotional Disturbance 6.5
Intellectual Disability 7.4
Specific Learning Disability 38.2%
Speech or Language Impairment 22%

*Autism 5.2
Multiple disabilities 2.0
Developmental Delay 5.5
Hearing Impairment 1.2
Orthopedic Impairment 1.1
Visual Impairment 0.4

**Asthma, attention-deficit disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, hepatitis, rheumatic fever, sickle cell anemia

Source: National Center for Education Statistics (2011g).