

# 1

## *What Should Every Teacher Know About Visual Impairments?*

Students with visual impairments were among the first to receive special education services in the United States (Fazzi & Pogrud, 2002; Orr & Rogers, 2002). The first institutional programs—the New England Asylum for the Blind and the New York Institution for the Blind—began in 1832. Five years later, the first residential school for students who were blind opened in Ohio. It was not until 1900 that the first day-school classes for students with visual impairments were held in Chicago, IL. In 1911, New York became the first state to make education compulsory for children with vision problems. In 1913, both Boston, MA, and Cleveland, OH, started classes for students who were partially sighted. Until the passage of the Education for All Handicapped Children Act (Public Law 94-142) in 1975, it was common to place students with visual impairments in residential settings and day schools. Today, more and more students with sensory disabilities are being included in general education classes with their neighbors and peers and are leading more productive lives, both in and out of school, as a result of it.

## DEFINITION

According to U.S. federal regulations, a **visual impairment** is a problem seeing that, even with correction, adversely affects a child's educational performance. The term does not include people with normal or near-normal vision, but does include people with low visual functioning as well as those who have only light perception or those who are totally without the sense of vision (Barraga & Erin, 1992; Orr & Rogers, 2002). People with normal or near-normal vision can perform tasks without special assistance. People with low vision may have difficulty with detailed visual tasks or may perform them at reduced levels of speed, endurance, or accuracy, even with assistance. People who are blind or near-blind have unreliable vision and rely primarily or exclusively on other senses.

Visual impairments are often defined in terms of **visual acuity**—the ability to see things at specified distances. Visual acuity usually is measured by having the person read letters or discriminate objects at a distance of 20 feet. Those who are able to read the letters correctly have normal vision. Visual acuity is expressed as a ratio, which tells us how well the individual sees. The expression **20/20 vision** describes perfect (normal) vision; it means that the person can see at 20 feet what people with normal vision see at 20 feet. A person with 20/90 vision needs to be 20 feet away to discriminate letters or objects that a person with normal vision can read or discriminate at 90 feet.

How poor does visual acuity have to be in order to be considered a visual impairment? To address this question, the American Medical Association (AMA) adopted a definition of blindness in 1934 that is still used today and is included in federal law. According to that definition, the criterion for **blindness** is

... central visual acuity of 20/200 or less in the better eye with corrective glasses or central visual acuity of more than 20/200 if there is a visual field defect in which the peripheral field is contracted to such an extent that the widest diameter of the visual field subtends an angular distance no greater than 20 degrees in the better eye. (Koestler, 1976, p. 45)

## What Should Teachers Know About Visual Impairments? 9

A person who needs to stand at a distance of 20 feet to see what a person with normal vision can see from 200 feet away is considered **legally blind**. The second part of the AMA definition is included so that people with a severely restricted field of vision are also considered legally blind. When looking straight ahead, a person with a **normal field of vision** is able to see objects within a range of approximately 180 degrees. Mary's field of vision is only 10 degrees, so she is able to see only a limited area at any one time, even though her visual acuity in that area is actually quite good. People with restricted visual fields sometimes liken the process of seeing to looking through a narrow tube or tunnel. Other field-of-vision problems make it difficult to see things clearly in the central visual field even though things can be seen relatively easily in the peripheral field.

## ELIGIBILITY FOR SPECIAL EDUCATION

Students with blindness are not the only ones eligible for special education services. Students who have a visual impairment but are not blind (i.e., those with low vision) are also eligible. These are students with visual acuity greater than 20/200 but not greater than 20/70 in the better eye with correction. For most practical purposes, a student with a **visual impairment** is one who has visual acuity with correction of less than 20/70. In all cases, the standard is employed "with correction." This phrase means that, if the condition can be corrected with glasses or contact lenses, the student is not eligible for special education services.

### Focusing Difficulties

Although the most frequently mentioned visual impairments are related to visual acuity and field of vision, how people see can also be affected by other problems. **Myopia**, or nearsightedness, is a condition in which people see objects that are close but not those at a distance. **Hyperopia**, or farsightedness, is a condition in which people see objects at a distance but not

## 10 Teaching Students With Sensory Disabilities

those that are close. **Astigmatism** is a condition in which the eyes produce images that are not equally in focus. **Ocular motility** problems affect the eyes' ability to move smoothly and focus properly. **Strabismus** describes an inability to focus both eyes on the same object, causing one eye to become nonfunctional and vision to be affected. **Nystagmus** is rapid, involuntary lateral, vertical, or rotary movements of the eye(s) that interfere with bringing objects into focus. Although conditions like nearsightedness, farsightedness, and astigmatism can affect school performance, they are most often corrected before or during school and are generally not considered visual impairments requiring special education services.

### Visual Functioning

In recent years, teachers have begun to place more emphasis on visual functioning than on visual acuity or field of vision as measured by vision tests. This shift in focus takes into account that all students who are blind or who have low vision are not alike in the ways they use their vision. It is more common now for students with blindness or low vision to be classified in terms of the kinds of special assistance they need to be successful or the kinds of instructional approaches that are effective. From this perspective, students who are blind are those who must be educated through channels other than sight (using braille or audiotapes, for example). Students with low vision can use print materials, but may need modifications such as enlarged print or low-vision aids (magnification).

### PREVALENCE

During recent school years, about 26,000 students with visual impairments received special education services; also in recent years, the proportion of students with visual impairments who have received services has decreased notably, by about 12 percent (U. S. Department of Education, 1993, 1999, 2000, 2001, 2002). This group represents about 0.05 percent of school-age

children and adolescents and about 0.5 percent of students with disabilities. There is relatively little variation in the percentage of students identified in each of the states. In recent years, students with visual impairments had the second highest (48 percent) placement in general education classes; 20 percent were served from 21 to 60% outside general education classrooms, 17 percent were served more than 60% outside general education classrooms, and the remaining students were in separate school settings (U. S. Department of Education, 2000, 2001, 2002).

## WHAT YOU MAY SEE IN YOUR CLASSROOM

Students with visual impairments receive special education because their vision after correction remains limited to such an extent that it affects their development and achievement without intervention (Fazzi & Pogrud, 2002; Orr & Rogers, 2002; Peavey & Leff, 2002). Some possible signs of vision impairments are presented in Table 1.1. Not being able to see as well as neighbors and peers may result in a variety of cognitive, academic, physical, behavioral, and communication characteristics if appropriate modification and specialized instructional interventions are not provided.

### Cognitive Characteristics

Cognition is largely a matter of developing concepts. Because many concepts are learned entirely through visual means, students with visual impairments have difficulty learning some concepts. Think for a minute about the difficulty of learning concepts such as orange, circle, bigger, perpendicular, bright, and foggy with limited vision. Students who have visual impairments are not necessarily intellectually slower than their peers, but they may perform poorly on standard intelligence tests (Orr & Rogers, 2002). The reason? The nature of those tests. Look at the following items from intelligence tests:

## 12 Teaching Students With Sensory Disabilities

**Table 1.1** Top Ten Signs of Visual Impairments

- 
1. Student frequently experiences watery eyes.
  2. Student frequently experiences red or inflamed eyes.
  3. Student's eye movements are jumpy or not synchronized.
  4. Student experiences difficulty moving around the classroom.
  5. Student experiences difficulty reading small print.
  6. Student experiences difficulty identifying small details in pictures or illustrations.
  7. Student frequently complains of dizziness after reading a passage or completing an assignment involving vision.
  8. Student tilts head or squints eyes to achieve better focus.
  9. Student uses one eye more than the other for reading or completing other assignments.
  10. Student frequently complains of headaches or eye infections.
- 

What is a collar?

What is a pagoda?

Tell me another word for *illuminate*?

In what way are a radio tower and a police car alike?

Clearly, prior visual information is helpful in providing answers to questions like these. Similarly, many subtests and items on intelligence tests require that students see the stimuli and responses: Students are shown pictures and asked to identify them; they are shown bead patterns and asked to reproduce them; they are shown visual stimulus arrays and asked to find the one stimulus that differs from the others. Performances on test items like these are greatly influenced by how well students see.

## Academic Characteristics

Newland (1986) reported that "with the exception of unique problems of input and possibly a greater demand in processing,

the fundamental learning procedures of blind children do not differ from those of nonimpaired children" (p. 576). The impact of visual impairments on academic performance is very much a function of the severity of the condition (i.e., the degree of vision loss and its causes) and the age at which the student's vision was reduced. Modifications for students should be determined individually using assessment data; they should not be based simply on vision status classification. With appropriate assistance, students with visual impairments achieve academic success just like their neighbors and peers without visual impairments (Orr & Rogers, 2002).

The academic needs of students with visual impairments reflect a dual curriculum perspective that consists of

Traditional academic content that is the same as that taught to peers, and

Disability-specific content needed to be successful in the traditional curriculum.

Disability-specific skills include those related to concept development and communication, such as braille reading and writing, listening skills, use of a slate and stylus, use of an abacus for math, handwriting, and keyboarding. Additional skills may also be needed to enable the student to access the traditional curriculum (e.g., tactual map-reading skills). Access technology may also be necessary, including speech and braille access devices commonly known as screen readers and refreshable braille.

Meeting the academic needs of students with low vision frequently requires modifications to the environment and instructional materials as well as special equipment that will enhance a student's ability to acquire print information. Environmental modifications such as additional lighting and special seating arrangements may be required. Material modifications (such as adapting print materials to promote maximum contrast, minimal visual distractions, and special size requirements) may be necessary. Equipment and assistive technology that provides access to print information may be needed (e.g., magnifiers, closed-circuit television, and telescopic aids).

For young students, skills that emphasize the use of vision may require attention. Teaching modifications may be necessary, including allowing more time for completion of assignments and

## 14 Teaching Students With Sensory Disabilities

tests and providing shorter blocks of time for extensive reading assignments in order to prevent fatigue. Reducing the amount of copy work and drill work assignments (if concepts are understood) may help students produce quality products. Narration of videos and other visually presented information that is shown at a distance may facilitate information acquisition along with verbalizing writing on the chalkboard or overhead projector.

### Physical Characteristics

In terms of size and appearance, people with visual impairments are no different from those with normal vision (Orr & Rogers, 2002). As children develop, however, low vision and blindness may impact movement and the quality of motor skills. Imitation from visual observations, a primary method of learning for young children, may be absent for the child with a visual disability. In addition, information acquired through “incidental learning” (unintended learning through observation) may be unavailable to a child with a visual disability. Some children with visual difficulties also develop repetitive stereotypic movements commonly referred to as “blindisms,” such as rocking, eye poking, head rolling, and hand waving.

Instruction in nonacademic, disability-specific skills that encourage appropriate physical growth and independence begins in early childhood and continues throughout a student’s schooling. Emphasis on orientation and mobility is an essential component of the curriculum and should be available to every student with a visual impairment. **Orientation** refers to the ability to know where one is in relation to the environment. **Mobility** is the ability to move safely and efficiently from one place to another. Activities that provide and promote movement may discourage undesirable behaviors such as blindisms. A curriculum that includes and emphasizes nonacademic, disability-specific skills will enable a student to develop more fully.

### Behavioral Characteristics

In general, there are few social and emotional characteristics specific to students with visual disabilities (D’Allura, 2002;

Peavey & Leff, 2002). However, low vision and blindness may influence behavior. Nonacademic skills that may be affected include social skills, affective understanding, and nonverbal or body language behavior. In addition, independence in all areas of development will affect a student's behavior and the behavior of others toward the student.

**Social skills** are important to a student's overall success. Students need instruction and feedback in appropriate ways of interacting with others such as initiating a conversation without eye contact, age-appropriate ways of sitting and standing, and facial expressions. Many students with visual impairments cannot see nonverbal forms of communication, so they miss out on the information and feelings displayed with a look, a nod, a smile, a frown, or a shrug.

Students with visual impairments can be taught to assert themselves from an early age to maintain and develop age-appropriate independence. It is important for students with disabilities to learn from their peers without disabilities. For developing healthy self-concepts, it is equally important that they learn from peers and role models with visual disabilities. Meeting behavioral needs of students with visual disabilities works best not in isolation but in the environments in which the behaviors naturally occur.

## Communication Characteristics

Communication is the primary area in which students with visual impairments experience difficulty (Orr & Rogers, 2002). To read, for example, they sometimes have to use large-print books, special reading methods (braille), or recorded materials and readers. Many students with visual impairments are able to use special optical devices, such as magnifiers, small telescopes, glasses, or contact lenses to help them perform better at tasks such as reading. Most teachers find that students with visual impairments prefer reading regular print with the assistance of an optical device rather than large-print materials (Corn & Ryser, 1989).

To be successful, students with visual impairments require interventions that help them make up for their loss of vision (Chang & Schaller, 2002; Orr & Rogers, 2002). Some general interventions for students with vision impairments are presented in Table 1.2.

## 16 Teaching Students With Sensory Disabilities

**Table 1.2** Top Ten Tips for Teachers of Students With Visual Impairments

- 
1. Reduce the distance between the student and speaker as much as possible.
  2. Reduce glare and visual distractions as much as possible.
  3. Reduce clutter on classroom floor and provide unobstructed access to the door and to key classroom spaces.
  4. Seat the student near the chalkboard or overhead projections.
  5. Avoid partially opening cabinets, storage areas, and classroom doors; fully opened or closed doors are safer.
  6. Use complete sentences to provide additional context during conversations or instructional presentations.
  7. Use auditory cues when referring to objects in the classroom and during instructional presentations.
  8. Reduce unnecessary noise to help the student focus on the content of instructional presentations.
  9. Keep instructional materials in a consistent, specific place so the student knows where to find them easily.
  10. Make sure eyeglasses and other visual aids are functioning properly.
- 

Critical to the literacy needs of students with visual impairments is determining an appropriate literacy medium. This determination should be based on an assessment of individual communication and learning skills. The decision to use braille or print (or a combination) for reading and writing may be obvious for a student who is totally blind, but it can be a difficult decision for a student with low vision. A sampling of factors that assist teachers in making this decision includes a student's preferences in using vision or touch to complete tasks, degree of vision, ability to read his or her own handwriting, fatigue, as well as the presence of other disabilities. In addition, the use of large-print and auditory materials and tools should be based on a thorough and ongoing media assessment. Most teachers find that students with visual impairments prefer reading regular print with the assistance of an optical reader rather than reading large-print materials.