

Visual Impairments

Federal Definition (Including IDEA) and other commonly used definitions)

Vision - The capacity to see, after correction, is limited, impaired, or absent and results in one or more of the following: reduced performance in visual acuity tasks; difficulty with written communication; and/or difficulty with understanding information presented visually in the education environment. The term includes students who are blind and students with limited vision.

<http://www.doe.mass.edu/sped/definitions.html>

Visual impairment, including blindness: An impairment in vision that, even with correction, adversely affects a child's educational performance. The term includes both partial sight and blindness.

<http://www.ericdigests.org/1999-4/ideas.htm>

Legally Blind. A person who has visual acuity of 20/200 or less in the better eye even with correction (e.g., eyeglasses) or has a field of vision so narrow that its widest diameter subtends an angular distance no greater than 20 degrees. (Hallahan, Kauffman, and Pullen, 2009, p. 380)

Low Vision. A term used by educators to refer to individuals who visual impairment is not so severe that they are unable to read print of any kind; they may read large or regular print, and they may need some kind of magnification; using the legal/medical system, low vision is acuity between 20/70 and 20/200 in the better eye with correction. (Hallahan, Kauffman, and Pullen, 2009, p. 381)

Causations of disabilities (when known)

- **Refraction.** The bending of light rays as they pass through the structures (cornea, aqueous humor, pupil, lens, vitreous humor) of the eye.
- **Myopia.** Nearsightedness; vision for distant objects is affected; usually results when eyeball is too long.
- **Hyperopia.** Farsightedness; vision for near objects is affected; usually results when the eyeball is too short.
- **Astigmatism.** Blurred vision caused by an irregular cornea or lens.
- **Glaucoma.** A condition often, but not always, due to excessive pressure in the eyeball; the cause is unknown; if untreated, blindness results.
- **Optic nerve.** The nerve at the back of the eye, which sends visual information back to the brain.
- **Cataracts.** A condition caused by clouding of the lens of the eye; affects color vision and distance vision.
- **Diabetic retinopathy.** A condition resulting from interference with the blood supply to the retina; the fastest-growing cause of blindness.
- **Cortical visual impairment (CVI).** A poorly understood childhood condition that apparently involves dysfunction in the visual cortex; characterized by large day-to-day variations in visual ability.
- **Retinitis pigmentosa.** A hereditary condition resulting in degeneration of the retina; causes a narrowing of the field of vision and affects night vision.
- **Tunnel vision.** A condition characterized by problems in peripheral vision, or a narrowing of the field of vision.
- **Night blindness.** A condition characterized by problems in seeing at low levels of illumination; often caused by retinitis pigmentosa.
- **Retinopathy of prematurity (ROP).** A condition resulting in abnormal growth of blood vessels in the eye; caused by factors related to premature birth, including the administration of an excessive concentration of oxygen at birth.
- **Strabismus.** A condition in which the eyes are directed inward (cross eyes) or outward.
- **Nystagmus.** A condition in which there are rapid involuntary movements of the eyes; sometimes indicates a brain malfunction and/or inner-ear problems.

Characteristics of disabilities

- **Orientation and mobility (O & M) skills.** The ability to have a sense of where one is in relation to other people, objects, and landmarks and to move through the environment.

- **Cognitive mapping.** A nonsequential way of conceptualizing the spatial environment that allows a person who is visually impaired to know where several points in the environment are simultaneously; allows for better mobility than does a strictly sequential conceptualization of the environment.
- **Obstacle sense.** A skill possessed by some people who are blind, whereby they can detect the presence of obstacles in their environments; research has shown that it is not an indication of an extra sense, as popularly thought; it is the result of learning to detect subtle changes in the pitches of high-frequency echoes.
- **Doppler effect.** A term used to describe the phenomenon of the pitch of sound rising as the listener moves toward its source.

What does a student with (specific disability) need from a teacher (regarding structure and organization, curriculum, expectations, special adaptations, transition, and/or social relationships with peers)?

- **Phonological awareness.** The ability to understand that speech flow can be broken into smaller sound units such as words, syllables, and phonemes; generally thought to be the reason for the reading problems of many students with learning disabilities.
- **Stereotypic behaviors.** Any variety of repetitive behaviors (e.g. eye rubbing) that are sometimes found in individuals who are autistic, blind, severely intellectually disabled, or psychotic; sometimes referred to as stereotypies or blindisms.
- **Literary Braille.** Braille symbols used for most writing situation.
- **Nemeth Code.** Braille symbols used for mathematics and science.
- **Unified English Braille.** A combination of literary Braille and Braille codes for technical fields, such as the Nemeth Code for science and mathematics; not yet widely adopted.
- **Perkins Braille.** A system that makes it possible to write in Braille; has six keys, one for each of the six dots of the cell, which leaves an embossed print on the paper.
- **Slate and stylus.** A method of writing in Braille in which the paper is held in a slate while a stylus is pressed through openings to make indentations in the paper.
- **Braille bills.** Legislation passed in several states to make Braille more available to students with visual impairment; specific provisions vary from state to state, but major advocates have lobbied for (1) making Braille available if parents want it, and (2) ensuring that teachers of students with visual impairment are proficient in Braille.
- **Large print books.** Books having a font size that is larger than the usual 10-point type; a popular size for large-print books is 18-point type.
- **Magnifying devices.** Often recommended for people with low vision; can be for close vision (e.g., handheld magnifier) or distance vision (e.g., monocular telescope or binocular telescope mounted eyeglass frames).
- **Long cane.** A mobility aid used by individuals with visual impairment, who sweep it in a wide arc in front of them; proper use requires considerable training; the mobility aid of choice for most travelers who are blind.
- **Tactile map.** An embossed representation of the environment that people who are blind can use to orient themselves to their surroundings.
- **Kurzweil 1000.** A computerized device that converts print into speech for persons with visual impairment; the user places the printed material over a scanner that then reads the material aloud by means of an electronic voice.
- **Braille notetakers.** Portable devices that can be used to take notes in Braille, which are then converted to speech, Braille, or text.
- **Newsline.** A service allowing access via touch-tone phone to several national newspapers; available free of charge to those who are visually impaired.
- **Descriptive Video Service.** A service for use by people with visual impairment that provides audio narrative by key visual elements; available for several public television programs and some videos of movies.
- **Screen reader.** Software for computers that magnifies images on the screen, converts text on the screen to speech, or both.
- **Itinerant teacher services.** Services for students who are visually impaired in which the special education teacher visits several different schools to work with students and their general education teachers; the students attend their local schools and remain in general education classrooms.
- **Curriculum-based management (CBM).** A formative evaluation method designed to evaluate performance in the curriculum to which students are exposed; usually involves giving students a small sample of items from the curriculum in use in their schools; proponents argue that CBM is preferable to comparing students with national norms or using tests that do not reflect the curriculum content learned by the students.

- **GeoLogger.** A multipurpose device for collecting detailed travel data including second-by-second position and speed data. This device works in concert with a GPS system; it has been used for assessment purposes to evaluate the orientation and mobility of persons with blindness or low vision.

Organizations that support, work for, or advocate for the disability.

American Academy of Ophthalmology
655 Beach Street, P.O. Box 7424
San Francisco, CA 94109
415-561-8500
www.aao.org

American Council of the Blind, ACB
1155 15th St. NW, Suite 1004
Washington, DC 20005
202-467-5081, 800-424-8666
www.acb.org

American Foundation for the Blind, AFB
11 Penn Plaza, Suite 300
New York, NY 10001
800-232-5463, 212-502-7638

Publications, aids and appliances
100 Enterprise Pl., P.O. Box 7044
Dover, DE 19903
800-829-0500

Aids and appliances, AFB Products Center
342 Melrose Avenue
Roanoke, VA 24017
800-829-0500
www.afb.org

American Macular Degeneration Foundation, AMDF
P.O. Box 515, Northampton, MA 01061-0515
413-268-7660, 888-622-8527
www.macular.org

American Optometric Association
243 Lindbergh Boulevard
St. Louis, MO 63141
314-991-4100
www.aoanet.org

Blinded Veterans Association
477 H Street NW
Washington, DC 20001
202-371-8880
www.bva.org

Commonwealth Council of the Blind, CCB
P. O. Box 12052
Richmond, Virginia 23241-0052
804-264-0970
www.ccb-va.org

The Foundation Fighting Blindness

11435 Cronhill Drive
Owings Mills, MD 21117-2220
888-394-3937, TDD – 800-683-5551
www.blindness.org

Macular Degeneration Foundation, Inc.

P.O. Box 531313
Henderson, NV 89053
www.eyesight.org

National Federation of the Blind, NFB

1800 Johnson St.
Baltimore, MD 21230
410-659-9314
www.nfb.org

National Society to Prevent Blindness

500 E. Remington Road
Schaumburg, IL 60173
800-331-2020, 708-843-2020
Virginia Affiliate, 804-355-0773
<http://www.pbv.org>

Long term implications of the disability on adolescents and adults

Many working-age adults with visual impairment are unemployed, and those who do work are often overqualified for the jobs they hold. For example, surveys indicated that adults who are blind are employed at about half the rate of those who are sighted (Capella-McDonnell, 2005; Houtenville, 2003), and data show that they are paid the lowest average hourly rate of all the disability categories (Kirchner & Smith, 2005). (Hallahan, Kauffman, and Pullen, 2009, p. 415)

With proper training, preferably starting no later than middle school, most people who are blind can lead very independent lives. (Hallahan, Kauffman, and Pullen, 2009, p. 412)

Current trends

- **Accessible pedestrian signals (APs).** Devices for people who are blind to let them know when the “walk” signal is on at intersections; can be auditory, tactile, or both.
- **Raised dome detectable warnings.** Bumps in the pavement that are designed to alert people who are blind to unsafe areas.

Annotated bibliography of at least 6 resources (websites, booklist, articles) for each disability area

- The Website at www.nbp.org/alph.html shows the Braille alphabet. This website, maintained by the National Braille Press, allows the user to type in a word or name and have it translated into Braille. Several Websites contain sample Snellen charts. Some examples are:
http://en.wikipedia.org/wiki/Snellen_chart <http://www.mdsupport.org/snellen.html>
<http://www.i-see.org/evecharts.html>

- The Website of Prevention Blindness America contains an example of a Web-based measure of near vision: www.preventblindness.org/eye_tests/near_vision.test.html
- Prevent Blindness America, founded in 1908, is a voluntary organization devoted to eye health and safety. Its Website at www.preventblindness.org contains a variety of information on blindness prevention.
- The American Foundation for the Blind has a Website, Braille Bug Site, developed to encouraging young children to learn Braille: www.afb.org/braillebug
- The National Federation of the Blind is probably the leading organization devoted to advocacy for people who are blind: www.nfb.org
- Another important organization is the American Foundation for the Blind: www.afb.org
- The Website HowStuffWorks.com has a section devoted to guide dogs: www.howstuffworks.com/guide-dog.htm
- A number of organizations and companies focus on raising and training guide dogs and helping people who are blind learn to use guide dogs. Following are some examples: The Seeing Eye, Inc.: www.seeingeye.org Guide Dogs of America: www.guidedogsofamerica.org Guiding Eyes for the Blind, Inc.: www.guiding-eyes.org Guide Dog Foundation for the Blind, Inc.: www.guidedog.org Guide Dogs for the Blind, Inc.: www.guidedogs.com
- The Cellular Telecommunications & Internet Association has a Website that provides information on cell phone products and features for people with disabilities: www.accesswireless.org
- The American Foundation for the Blind has a Website (<http://www.afb.org/Section.asp?SectionID=7>) devoted to helping people who are blind find jobs. The site, which also has information for employers, has information on such things as career exploration, finding a job, getting hired, and keeping a job. It also offers a way to link to other workers who are blind and who can serve as mentors.
(Hallahan, Kauffman, and Pullen, 2009, p. 382-405)