

Visual Impairment Characteristics

Teachers who have classes including children diagnosed as legally blind (20/200 or less in the better eye *after* correction) or partially sighted (20/70) may benefit from some general information regarding their education. For educational purposes, children who are blind are described as those who read and write in Braille, while children with partial vision are those with enough sight to read standard or enlarged print.

It is not unusual for a child with poor sight to go undetected until reaching school age. Alert teachers who notice behaviors such as excessive eye rubbing, awkward positioning of reading materials, irritability, or lack of simple vision skills are often responsible for the first thorough eye examination that reveals a physical disability. In some cases, no physical defect is found and the problem is then treated as a perceptual impairment.

Every teacher concerned with the development of children with sight impairments has a right and a need to know some basic information regarding their condition. Children with handicaps are best served when all those working with them are familiar with all factors that may have a bearing on their ability to learn. The following information should be included in a medical report and should be made available by the school nurse or resource teacher to all teachers concerned. Parents are usually willing to have this information shared with teaching professionals, and their help in understanding a child's condition should be solicited by the appropriate professionals. Wise teachers listen carefully to how parents describe their child's behaviors because it will help them understand how the child learns.

Diagnosis (Identification of the condition) This will help a teacher understand behavior such as irritability, the inability to effectively use vision, or emotional lability. Certain conditions are characterized by increasingly deteriorating sight (e.g., acute myopia, retinitis pigmentosa) and might be accompanied by emotional trauma.

Etiology (The cause) Knowing the cause can keep education alert to signs of other disabilities, both organic and emotional, that may surface at a later date. For example, conditions caused by infections resulting in brain damage (e.g., rubella) may be accompanied by perceptual disabilities in other areas as well. In other words, a child who is totally blind could have the same kinds of perceptual difficulties that some children with sight have (i.e., reversals, directionality problems, discriminations).

Age of onset The child born without sight is usually well adjusted to the condition by the time he or she enters school. Emotional and social adjustment will, to a large extent, reflect family attitude and adjustment to the condition. If a child has been without sight since birth or shortly after, he or she obviously has had no opportunity to experience certain visual concepts, such as color. Children who had sight at one time tend to retain some visual memory for these concepts.

Prognosis (Probable result or future of the condition) Teachers need to be aware of progressive conditions so they can be prepared to give emotional support when needed and be alert to signs of deterioration in order to modify the learning environment appropriately.

Degree and kind of loss As with hearing losses, it is important for teachers to know as much as possible about just how and what a child sees. Evaluations are given for each eye and, in the case of young children particularly, are often given in descriptive terms (e.g., "counts fingers," "sees shadows"). The report should give an evaluation of sight both with and without correction (i.e., glasses), if appropriate. A near vision measure should be requested by the school if it is not included in the medical report. Near vision evaluations are usually given in terms of print size that can be read at specific distances and are extremely important in educational planning for the child.

Children with partial vision are by no means a homogeneous group. For some, sight is nearly normal when objects are within close range. Others may have problems seeing clearly or bringing visual objects into focus. Still others have a limited field of vision, seeing only what is directly in front of them, or sometimes only peripherally. Color loss and distortion can accompany some of these conditions as well. A teacher must be aware of each child's visual limitations and ability to efficiently use whatever vision remains.

The problems of the child with partial sight are frequently underestimated. Because the child looks like and functions like other children in most classroom activities, it is sometimes difficult for peers to tolerate limitations on the playground, where the child's vision is more obviously inadequate. In chorus, band, or orchestra, the child may be able to read the music but most likely will not be able to see the conductor. However, even musicians who are totally blind are capable of successful participation in all types of performing groups.

Learning Style

Children with loss of sight are among the easiest to mainstream into regular music classes as they require little in the way of special teaching methodology. Our most difficult task is providing suitable materials for them.

Normally intelligent children with sight impairment tend to be extremely verbal. They especially enjoy word games and are often able to appreciate verbal brain teasers and silly songs before other children do. Sneaking in ridiculous verses when singing familiar action songs is also a good way of keeping them mentally alert and attentive to the ongoing activity. (example: "If you're happy and you know it, stand on your ear.")

Most children who are blind have excellent fine motor skills because of their constant manipulation of things. Activities that utilize hand-mouth movement (blowing instruments, mouth sounds made with the hands, and so forth) as well as tongue movements are very useful for young children especially.

Because children who are blind lack visual stimulation, they tend to be egocentric. Young children often must find ways to entertain themselves, especially if there are no siblings near their age and no opportunity to play with peers who are not

blind. There is a limit to how much time even the most devoted parents can spend with a child. Peculiar mannerisms such as rocking, head-rolling, and eye-poking are the result of compensation for the lack of visual stimulation that bombards the individuals with sight during every waking moment. The child who is kept actively involved and participating will have less need for self-stimulation behaviors.

When beginning school, a student with sight impairments may have some initial difficulty in adjusting to things like partner and group activities that usually demand following a structure, sharing, and carrying out an assigned task. With the increased willingness of nursery and preschool programs to accept children with handicaps, and the advent of mandatory inclusion of people with handicaps in Head Start programs, these social inadequacies will, hopefully, be significantly diminished.

The child with impaired sight needs to develop the same basic learning skills as all children. The following section describes some of the unique ways in which individuals lacking sight use these skills, and it points out their importance for learning and for living a normal life.

Auditory perception Nearly everyone admires the extremely acute auditory sense demonstrated by the majority of individuals who are blind. Persons who are congenitally blind are not born with this ability as a compensatory device, although that idea is commonly held by the layperson. The auditory sense develops the same way in people who are blind as in individuals who are sighted. It is developed to a greater degree by the individual who learns how to maximally utilize this sense to acquire information that is ordinarily brought to others through sight.

It is important that young children with sight loss have many experiences and opportunities to develop auditory skills to their fullest potential. Young children with partial sight often have a natural tendency to rely on their sight, no matter how poor. They are sometimes at a greater disadvantage than the child who is totally blind, since they may have just enough sight to get by with, but not enough to be functional for independent learning. Therefore, they must be encouraged to develop efficient auditory skills early. Although intelligent individuals who are blind will develop excellent auditory skills on their own, we can help young children become better oriented, mobile, and independent earlier by helping them develop and use auditory skills in their formative years. Certainly music education programs can help make a significant difference in the development of these essential skills.

Tactile perception The tactile sense is used as a substitute for acquiring visual concepts. Children who are blind "look at" something by exploring it with their hands. They can also disassemble things with lightning speed, so you may want to guide their exploration of certain objects – unless you are prepared to have your violin returned to you with pegs, bridge, and soundpost on the side!

Texture Texture is a characteristic that people who are blind also use to greater advantage than people with sight. A child will often associate characteristics such as the degree of roughness or smoothness, temperature, and patterns he or she feels, as part of the concept of an item that is explored tactually.

Learning Needs

The auditory sense is the one through which learning is most easily facilitated in people with sight impairments. Most information gathering will unquestionably come through this sense. Discrimination skills are obviously important, but other auditory skills play a larger part in making people who are blind more independent and mobile than most teachers realize.

Sound localization This is a very important skill for individuals with loss of sight. In addition to being able to locate the source of sound, they need to develop accuracy in determining their distance from the sound source. This ability will be invaluable when traveling independently and entering unfamiliar buildings. People with sight are often amazed at the ability of an individual who is blind to determine the physical characteristics of an unfamiliar room by creating or paying attention to echoes. Children who are blind often begin to experiment with developing this skill as young as nine or ten years old. They may be observed using mouth sounds or finger snaps as they walk down the hall, into the lavatory, and so forth.

Auditory memory Auditory memory is another skill that people with sight impairments must often rely on, since it is difficult, or impossible, for them to look up information in directories, dictionaries, textbooks, and so forth. Regularly challenging children to supply missing words or phrases in songs is a common way of practicing and sharpening memory skills.

Auditory figure-ground The ability to concentrate on one sound among others is another essential skill for people with sight impairments. Since the auditory mode is often the one that is the most accessible, they must rely on it for information, conversation, and danger warnings.

The choice of materials is often crucial when teaching the child with impaired sight, and every effort should be made to provide suitable materials. Pictures and diagrams should be large and close enough for the partially sighted to see, or in raised form to be read tactually by people who are blind. Duplicated materials in colors other than black and white are generally useless to people who are partially sighted, as the contrasts of the ink on paper are not great enough to enable them to see, even if written in large form. Children with partial sight may require large-print music materials, although some are able to read standard print and others can successfully use special aids such as magnifiers.

Children who are blind will require Braille reading and writing materials, though not necessarily music Braille. Braille is an international system of reading in which embossed dots are read tactually with the fingertips. Three Braille codes, *literary*, *music*, and *mathematics*, use the same 63 characters that can be derived by varying the combination of dots within the Braille cell (⠠⠠⠠). Braille music is a very complicated system. An individual must have proficiency in reading literary Braille before being ready to tackle the music code. Even when the music code is mastered, reading each music score is somewhat similar to working a jigsaw puzzle, particularly

in the case of keyboard instruments. Keyboard players must be able to analyze rhythmically and harmonically, since Braille characters are read singly, rather than in groups like letters. In addition, music Braille characters have more than one interpretation *within the music code* (e.g., $\cdot\cdot\cdot[C] = \circ$ or \downarrow), so that each measure must be read and studied to see if everything "adds up" (e.g., the right number of beats, appropriate chord tones, logical voicing). Music teachers need not be discouraged by the preceding information, however. Although correspondence courses are available through the Library of Congress (there are less than 100 certified Braille music transcribers in all of the United States), music teachers do not need formal training in order to guide students who read Braille music. Since Braille is always read visually by people with sight anyway, a good Braille resource book (ink-print edition) and a print copy of the score is usually all that is needed.

If a child who needs Braille materials is able to distinguish music from words (i.e., recognizable that they are different codes), the psychological values of having his or her own book in the general music class is tremendous. Although unable to read the music, like most children, children who are blind enjoy being able to follow the words of songs. In the beginning they may be slow in both reading and finding where music leaves off and words begin as they start each new line. The teacher who teaches Braille reading to the child should be consulted as to a child's readiness to cope with a Braille music book so that the child will not be frustrated by what is not understood. This teacher can also help in securing a music book for the child to use. Braille and large-print volumes require extra storage space because of their quantity and size. For example, the brailled edition of *Making Music Your Own, Book 3*, requires three volumes each about twice the size and thickness of the pupil's printed book. The large-print edition is in two volumes that are even larger in size.

Concept development is an area that needs special thought on the part of the teacher. All verbal learning must be backed up with concrete experiences for the sight impaired. For example, it is usually recommended that the child who is blind from birth become familiar with number and letters as they appear in print. This is also true for music symbols. Tactile aids in which these symbols are in raised form will give the child a mental image of what they look like in print. Although the Braille code does not use music symbols as such, the musician who is blind is at a disadvantage when interacting with musicians with sight if he or she has no concept of traditional printed music symbols.

Familiarity with print symbols is becoming increasingly important as technological advancements in aids for the blind are developed. One instrument, the Optacon, enables the blind to read print by translating visual images into tactile impressions on the fingertips. Obviously, the reader must be familiar with the printed alphabet to use it. Although not yet practical for reading music, it seems likely that as further improvements are made in such devices, music may someday be read by the blind in similar fashion.

Certain visual concepts, such as size and proportion, cannot always be explored tactually. If people who are blind could explore all the instrument families, we could be sure of their understanding the difference in size but the similarity in shape (e.g., violin and string bass). The harp, on the other hand, obviously could be felt to be both larger than and dissimilar in shape to the rest of the string family.

Lacking the opportunities to provide these experiences will be inevitable for many teachers. Consequently it is extremely important to verbally describe and especially to make comparisons in size and dimension (e.g., "The string bass is as tall as your daddy," "I use the endpin to rest the cello on the floor because it is just a bit too big to hold up while playing it"). Every effort should be made to explain visual concepts in ways that are analogous to the child's experiences. Call attention to songs and musical stories that emphasize size (e.g., *Three Bears*, *Three Little Pigs*, *The Giant's Shoes*), as well as classroom instruments that are graduated in size, such as resonator bells, xylophones, and drums. The concept of big-low, little-high can be explained this way also.

Textured materials make marvelous teaching aids for all children and especially for the sight impaired. Use pieces of fabric, grains, stones, string, and so forth, to make graphic scores or a chart describing characteristics of timbre, dynamics, or even rhythm. Texture paints can also be used. A child with impaired sight also needs to experience the difference in the feel of handcrafted instruments made from natural materials (e.g., gourd rattles, bamboo flutes, squeeze drums) as compared with the feel of manufactured ones.

Independent travel is the biggest hurdle facing the majority of individuals who are blind. Since it is only through movement that a person with a sight impairment can perceive space, gross motor activities are especially important. Children are naturally physically active and adventuresome. It seems logical that a child's early years are the best time to develop a sense of security in moving about independently, regardless of handicap.

Children with sight impairments enjoy running, jumping, and skipping as much as children with sight. Unless their mobility has been stifled by other handicaps or an overprotective environment, there will be few body movement activities the child will reject if they have been carefully explained, and if he or she is familiar with the spatial dimensions in which the activity is to take place. Once fixed obstacles have been located in the room (e.g., a post, piano, teacher's desk), the child will avoid them, especially if gently reminded. Occasionally, memory of these things is not quite permanent until the child falls over them once. Moveable obstacles will probably be cleared away to increase space for movement activities, but the child should be told of any new equipment, especially of a temporary nature. Many students who are blind have been needlessly embarrassed (and sometimes injured) by bumping into film projectors and the like because instructors have neglected to warn them in advance. In locomotor activities, children with sight may have to be reminded that they must be the compromising party if a collision seems likely. Should a child with sight impairments be reluctant to engage in a locomotor activity, encourage her or him to ask another child to be a partner. Sometimes a guide rope that is strung waist high along the length of the room will provide enough security to entice reluctant children to participate independently. Attach a clothespin on the rope well out from each wall so the children know when they have reached the end of the rope and must turn around. A child who lacks sufficient security to participate independently in locomotor activities can be met at his or her level by a number of movement activities designed to explore space within the immediate vicinity of the body. Hoops and ropes can establish boundaries in which to feel safe. Scarves and streamers are good aids for exploring

space around the body as well. Since the free play of children with impaired sight is often noticeably less creative than that of children with sight, creative movement should be a constant goal.

In addition to developing spatial relations and independent movement, the child with sight impairments needs to develop body image and awareness. Action songs, singing games, and dances in which the child locates or moves a body part are good practice. Locating body parts on a doll or another person is also recommended.

Children who have been overprotected from fear and guilt are often more egocentric than their age mates, more demanding, and more dependent than even total blindness would warrant. It is sometimes necessary to give special attention to improving the social level of such children if they are to grow in maturity to match their peers. Dressing and undressing, caring for their own possessions, and assuming their share of classroom chores should be expected of them – just as of every other child. Independence in mobility should be expected once they have become familiar with the physical layout of the room and, eventually, the entire school building. Keeping furniture arrangements consistent will promote confidence for moving about independently. Later, however, they should be able to adapt to new arrangements once they are described.

The Use of Musical Instruments for Children with Sight Impairments

It is difficult to identify any instrument, conventional or classroom, that would be beyond the capabilities of students with sight impairments. The reason that children with sight loss are discriminated against in public school instrumental programs is that teachers do not understand how to meet the needs of the child who does not read conventional printed music. We tend to place an undue amount of emphasis on reading in these programs, particularly in the beginning stages when children might better be free to learn about their instrument kinesthetically and aurally. Certainly the approaches of Suzuki, Orff, and Jaques-Dalcroze have vividly pointed this out, but many music teachers still find security in the method book. With teaching methodology and aids available to music educators today, there is no reason for discrimination to persist. As mentioned, individuals with sight impairments often develop superior auditory skills. Absolute pitch and excellent auditory memory are not uncommon among them. The teacher who takes on a child with impaired sight must be creative, flexible and empathetic to the special problems of a musician who is blind (e.g., difficulty in obtaining music, inability to see a conductor). The child can learn a good deal about music aurally. In fact, his or her performance ability may become proficient through this medium alone. It would seem that such an individual would have little need for music reading. However, one must ultimately face the fact that a musician who is blind and lacks the ability to read and write within the context of printed music will not be able to continue to excel within the classical music arena unless given individual support.

A child with sight impairments requires little, other than materials, in the way of special attention. The following suggestions are but small considerations. Some will require the help of the resource teacher or other person familiar with Braille and special teaching aids for individuals with sight impairments.

1. Label Autoharp, resonator bells, Orff bars, and/or piano keyboard with Braille letters. The children usually enjoy making the labels for you.
2. A raised-line drawing board provides a writing surface on which impressions are raised and can be used to tactually teach printed music symbols.
3. A Thermoform Brailon Duplicator machine can make copies of raised visuals, such as graphic scores, diagrams, the staff, and music symbols. Most programs for people with sight impairments have access to one of these machines.
4. Flash cards, such as those used to teach music notation, can be brailled in the bottom corner so that the child who is blind may participate in the activities for which they are used.
5. The tape recorder can be a valuable teaching aid, especially for teaching instrumental lessons. Prepare a tape during the lesson that includes practice reminders as well as the next assignment. Pre-recorded accompaniments and individual ensemble parts allow the student who is blind to practice more independently.
6. When teaching a child with partial sight (or a perceptual handicap), it is sometimes easier for the child to focus on the line to be read if everything else on the page is masked out. This is easily done by cutting out a piece of white paper so that only the line to be played shows.
7. Children with sight impairments can participate in ball activities if an audible ball is purchased or a way is found to attach a bell to a regular ball (e.g., beachball).
8. When instrument lockers are assigned, a child with sight impairments will find one on the end of the row easier to locate.

Miscellaneous Hints

1. When calling on a child with sight impairments in a group situation, always address the child by name.
2. When meeting an individual who is blind outside of the environment in which you normally both interact (e.g., on the street, at a party), always identify yourself first when speaking.
3. Half-open doors are very hazardous for people with sight impairments. They should be fully closed or fully opened, never in between.
4. When walking with a student who is blind, encourage him or her to use you properly as a human guide. This will also set a good example for students who have sight. Never lead an older student by the arm. Instead, walk slightly ahead and to the side, allowing the student to grasp your arm above the elbow. It should not be necessary to give any verbal explanations regarding direction or obstacles. Never lead an individual who is blind by pushing him or her in front of you. Young children rarely use mobility aids such as canes or dogs. As students approach junior high school, they will have need for more formal mobility training in order to become independent travelers. They should be encouraged to use proper mobility techniques at all times.

