

Including Children with Hearing Loss in Early Childhood Programs

Laurie Katz and Teris K. Schery

Jonathan is three years old and has a severe hearing loss. He wears hearing aids in both ears, uses mostly sign language to communicate, and has begun to say some words. He attends preschool and also receives both individual and group oral language instruction at a speech and hearing center. Jonathan's mother grew up with a cousin who is deaf, and she has used sign language with Jonathan since his hearing loss was determined at 18 months of age. Jonathan's father and 11-year-old sister take an American Sign Language class. Jonathan's parents want him to have a total communication approach, using both signs and oral language.

Gloria is almost four years old and has normal hearing in her left ear and a moderate-to-severe hearing loss in her right ear, in which she wears a hearing aid. Her mother is returning to work and plans to enroll Gloria in preschool. She is concerned, however, that the teachers will not ensure that Gloria fully understands directions and learning concepts because many people, when interacting with Gloria, forget that she has a hearing loss.

Sandra, a firstborn, is nine months old and, through the hospital's newborn infant screening program, was diagnosed at birth with a profound hearing loss in both ears. She has worn hearing aids in both ears since four months of age and is seen weekly in her home by an infant/family early interventionist. Her parents have been active participants in this process since Sandra's birth. They want Sandra to have a cochlear implant as soon as possible (FDA guidelines specify 12 months). Sandra's parents want very much for her to learn oral language and be educated in general education classes. They want her to be totally part of the hearing world.

These are typical scenarios of children with hearing loss

who are being included increasingly in early childhood settings. Advances in technology make it possible to assess the hearing of infants even while they are asleep, by directly measuring the auditory nerve's response to electrical stimulation. Recent federal legislation encourages states to develop programs to screen the hearing of all infants before they leave the hospital, and currently 39 states have adopted newborn infant hearing screening mandates (ASHA 2005). Nationwide, more than two-thirds of infants were tested for hearing loss before leaving the hospital in 2002, and this percent-

age will continue to grow (Flanders 2002). As more children with hearing loss are identified earlier, inclusive settings for infants and toddlers will be required to provide appropriately for them. The requirement is mandated in the 1997 reauthorization of the Individuals with Disabilities Edu-



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cation Act (IDEA) (Part C, Early Intervention) through the use of natural environments, unless there is substantial evidence that instruction cannot be effective there.

A natural setting is one in which typical children of a particular chronological age are educated. Some children with hearing loss participate in a combined program. They receive services for part of the day with other children who are deaf or hard of hearing and spend part of the day in a general education classroom with typically developing peers, receiving

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As more children with hearing loss are identified earlier, inclusive settings for infants and toddlers will be required to provide appropriately for them.

any necessary supports from an audiologist, speech and language pathologist, or teacher of the deaf and hard of hearing. Both the National Association for the Education of Young Children and the Division for Early Childhood of the Council for Exceptional Children value inclusive practices for young children (DEC/CEC 1993).

Providing a communication-enriching educational program for young children with hearing loss is clearly critical to their future learning and development. Yet many early childhood educators have little information on how to include these children in a natural setting and, furthermore, may feel overwhelmed by the thought of implementing such a program.

To assist early childhood educators as they approach this challenge, this article provides information on

- the nature of hearing loss in children and implications for language development,
- the role of the early childhood educator as part of an educational/intervention team,
- the range of communication modalities used by children with hearing loss, and
- general strategies for helping integrate a child with hearing loss into the daily routines and educational practices of early childhood settings.

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The nature and needs of children with hearing loss

Early childhood educators want to learn about the children who enter their classrooms—interests, personality traits, strengths, learning styles, cultures, developmental levels, family experiences, and so on. When a child has a hearing loss, educators also want information that pertains to the child's hearing. This section focuses on helping teachers understand the nature and needs of children with hearing loss so teachers can make appropriate classroom modifications.

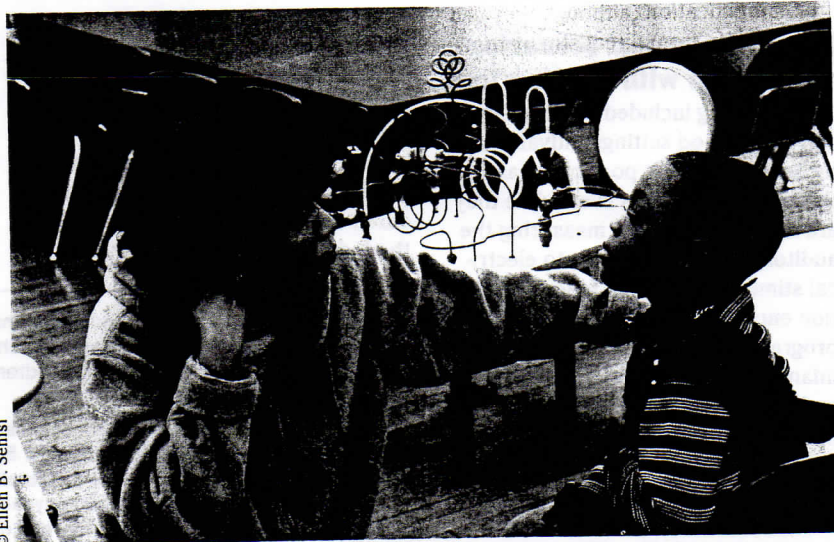
Types of hearing loss

Hearing loss is a general term referring to reduced functioning of the ear that can affect the intensity (loudness) and/or clarity of sounds heard. The most common type of hearing loss in young children is *conductive loss*, which typically concerns how loud sound must be for a child to hear it. Problems with the ear canal,

the eardrum, or the middle ear can cause this type of loss. Conductive losses are generally mild to moderate, and in the majority of cases, they can be treated medically or surgically. (Included in this category is the common childhood hearing loss that results from middle ear infections.)

A second and more permanent type of hearing loss is *sensorineural loss*, which involves damage to the cochlea (inner ear organ of hearing) or to the acoustic nerve to the brain. (A child's hearing loss might have both a sensorineural and a conductive portion; this is referred to as *mixed loss*.) Sensorineural loss typically causes speech to sound distorted as well as softer.

Hearing aids appropriately fitted to a child's particular hearing loss and used consistently are critical for enhancing the child's speech and language development as well as providing access to environmental sounds. However, children like Jonathan, with a severe-to-profound hearing loss, may have difficulty understanding speech even if hearing aids make the sounds louder, because the sounds may not be any clearer. It is a bit like turning up the volume on a radio station that has static: the static just gets louder. Through recently developed surgical techniques, doctors can implant an electrical device in a child's inner ear that delivers signals



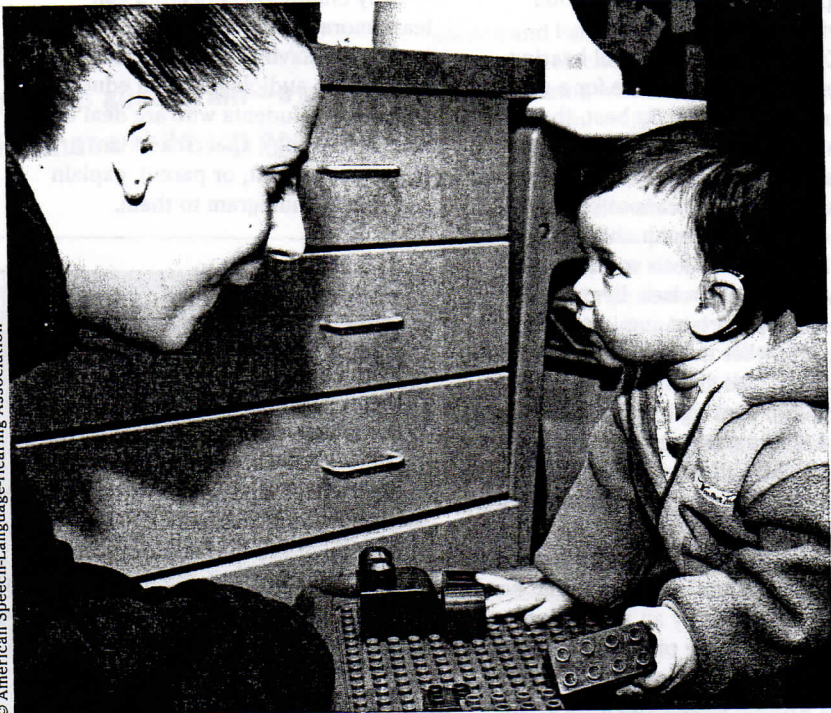
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directly to the brain. These devices, called cochlear implants, are currently used only with children like Sandra, who have a permanent severe/profound sensorineural hearing loss in both ears. Cochlear implants have many of the same issues as hearing aids; the individual needs to learn how to hear with either device.

Hearing loss is also categorized by overall level of hearing. Children who have a *mild hearing loss* may spontaneously develop some spoken language, although it may be delayed. Use of hearing aids or other means of amplifying sound should be considered for children with even mild sensorineural hearing loss, and early intervention should begin as soon as possible. Hearing loss in one ear, such as Gloria has, affects a child's ability to function in the classroom, including the ability to follow conversations in a noisy environment.

Children with *moderate and severe hearing loss* often respond well to amplification. Most require an early hearing aid fitting in one or both ears and early intervention for speech and language. As a result of Jonathan's hearing aids and oral language training at the speech and hearing center, he uses words to accompany the concepts he has developed through exposure to his mother's sign language.

Children with *profound hearing loss* are generally least likely to benefit from amplification (although they can often benefit from direct stimulation of the auditory nerve by means of a cochlear implant). Many rely heavily on a total communication system (an instructional system that pairs spoken words with simultaneous signs) or a manual communication system (sign language only, no voice). Sandra's parents want her to communicate



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using spoken language; therefore, they have chosen to pursue a cochlear implant for her because this device can provide some access to sound even for many profoundly deaf children.

Early childhood professionals can better understand what auditory information children with various hearing levels receive if they think about each sound as being made up of different *frequencies* (pitches) and *intensities* (loudness levels). Some speech sounds are higher in frequency or pitch, such as /s/, /th/, and /f/, whereas others are lower, such as /m/, /b/, and /d/. The intensity of the relatively low-pitched category of vowels is generally greater than that of consonants. Similarly, some environmental sounds are composed of high pitches (a whistle), and some of

low pitches (a foghorn). Environmental sound intensities vary from soft (whisper, cat purring) to dangerously loud (jackhammer, jet engine), with conversational speech being in the low-middle range. Speech sounds that are lower in pitch and have a relatively high intensity are often easier for many children with a hearing loss to perceive (for example, children can usually hear vowel sounds better than consonants).

Hearing assessment

Hearing levels are measured in decibels (dB) and range from normal hearing (0–14 dB) to total deafness (over 121 dB). Conversational speech typically is about 60 dB loud. A child like Jonathan, who has a severe hearing loss (hearing measuring 61–90 dB), may be unable to detect even loud speech directed to him unless he is wearing his hearing aids. A child like Sandra, with a profound hearing loss (hearing measuring 91–121 dB) hears virtually nothing without amplification, although she may

Children with a severe-to-profound hearing loss may have difficulty understanding speech even if hearing aids make the sounds louder, because the sounds may not be any clearer. It is a bit like turning up the volume on a radio station that has static: the static just gets louder.

respond to vibrations from loud environmental sounds.

Even the most powerful hearing aids cannot compensate for a profound hearing loss. At best, the child can hear many loud environmental sounds and be aware of the presence of speech. Sound cannot be made loud enough for such children to hear all individual speech sounds or soft environmental noises. Even so, the use of appropriate amplification is important for development of speech and language skills for children with profound hearing loss because awareness of the presence of sound, when combined with visual cues such as lip movements and gestures, provides crucial information.

Every child with a hearing loss has a unique pattern of hearing that can be represented by an audiogram—a visual plot of the pitches and intensities that a child can hear (both with and without amplification). For example, Jonathan's most recent audiogram suggests that in a relatively quiet environment and when wearing his hearing aids, he should be able to hear much of what the teacher says in a moderately loud conversational tone as long as he is within about three feet of the teacher and paying attention to her. However, during more noisy, center-based activity, the teacher may need to use a visual signal such as flicking off and on the lights to gain his attention and indicate that it is time to change activities.

Gloria's audiogram indicates that she should be able to follow the educator's conversation without difficulty during circle time, but it is easier for her if she is seated with her normal-hearing ear toward the teacher. She may have more difficulty following a conversation with several peers, especially in noisy settings like the housekeeping corner. It takes concentration for a child with a unilateral hearing loss to follow conversations, especially in a noisy environment. The teacher should encourage Gloria to indicate when she is getting "tired of listening," so the teacher can remind her to take breaks in a quiet setting.

Early childhood educators can learn more about an individual child's hearing by having a team member, such as the audiologist, deaf educator (teacher of students who are deaf or hard of hearing), speech and language pathologist, or parent, explain the child's audiogram to them.

Other factors

In addition to the type of loss and level of hearing, many factors may influence the communication development of a child with a hearing loss. The age when a child loses hearing has a great influence on the child's

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acquisition of an oral communication system. Children who lose their hearing (often due to disease like meningitis) after they have learned some language are better candidates for successful oral communication than are children who are born with a hearing loss.

Some losses are not stable over time. A child's hearing may deteriorate, requiring the child to adapt to increasingly less auditory information. Fluctuating losses, such as those that occur with middle ear disease, may result in inconsistent responses from a child: she may respond to the teacher's verbal request one day but not the next.

Another important factor influencing a child's communication progress is the child's age at the start of intervention. Early intervention alone may not guarantee superior language and social skills, but children who are deaf and did not receive intervention at an early age have been found to perform significantly below the level of children who did (Calderon & Naidu 2000; Yoshinaga-Itano 2000).

An additional factor affecting children's performance is the presence of other disabilities or conditions, such as visual impairment, developmental delay, cerebral palsy, or attention deficits. The outcomes for such children's communication and educational development vary greatly, but these conditions need to be considered carefully when planning intervention and assessing progress (Perigoe & Perigoe 2005).

A team approach

The Individuals with Disabilities Education Act, through federal and state mandates, ensures that children who have an educationally significant

hearing loss receive free, appropriate, public education. Children from birth to age three receive early intervention services through the development of an Individual Family Service Plan or IFSP (IDEA, Part C). Children in their school years through age 21 receive services spelled out in an Individual Education Program or IEP (IDEA, Part B). The programs are developed using a team approach that includes people (usually a parent, plus others who have worked with the child) who know the child's interests and personality and professionals who are knowledgeable about developing programs for children with hearing loss.

In addition to the teacher (see "The Teacher as Team Member"), team members typically include a family member(s), an audiologist who assesses children's hearing levels and works to provide appropriate amplification, and a speech and language pathologist who identifies and evaluates specific communication skills and deficits as well as provides

speech and language intervention services. A teacher of the deaf and hard of hearing who can provide information on overall educational strategies for the child is extremely helpful.

Other professionals may include an otolaryngologist—a physician who provides important information on medical and surgical considerations regarding the hearing loss—and a counselor or social worker who supports the family during the process of accepting and understanding the hearing loss and helps access appropriate resources and decide on intervention approaches. Staff may also need an interpreter to assist in communicating with the child or other family member who uses sign language.

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The Teacher as Team Member

The classroom teacher plays a crucial role within the team, providing knowledge of the educational setting (for example, physical layout, routine, activities, peers) and asking team members pertinent questions to facilitate maximum inclusion for the child. Some relevant questions include the following:

- What can the child hear both with and without the amplification system?
- What communication modality(ies) (oral language only, manual signs only, or a combination) does the family want emphasized in the early childhood setting?
- What amplification system(s) will be used, and how can staff members obtain training in its use? Can staff troubleshoot malfunctions? If not, who can staff contact if there is a system breakdown?
- What supportive strategies would make the child feel welcome and included in the classroom?

Communication modalities

A family may choose from a range of approaches to teaching communication and language to their child with a hearing loss (Lynas 1994). Oral speech and language training is probably the approach most frequently used with children in integrated preschool settings. Most children who receive cochlear implants at a young age are taught through an oral approach, in which they learn to understand spoken language and respond with speech.

Oral approach

There are several variations of the oral approach, including the auditory-verbal method (see www.auditory-verbal.org) in which children have to respond to sounds alone, with no accompanying visual information such as lip reading (an interventionist typically covers his mouth when speaking). Auditory-oral approaches incorporate visual support to help the child develop speech and oral language. These approaches include speech reading from the lips and face and sometimes the use of gestures and signs to help the child obtain meaning when listening alone is not sufficient. The focus, however, remains on helping the child learn to communicate through listening and speaking.

Visual or gestural systems

Visual or gestural systems are used by many children with hearing loss, especially those whose families include others with hearing losses. These systems include sign language, educational sign systems, and gestural communication systems. The sign language used by most adults in the United States who are deaf is American Sign Language (ASL). Not merely a visual representation of English, ASL has its own structure and rules. There often is not a one-to-one correspondence between ASL signs and English words (for example, past tense is indicated by signing the message toward the speaker's shoulder, while future tense is indicated by signing the same message out in front of the speaker).

In contrast, educational sign systems are designed to visually represent spoken English and thus make English (spoken and, later, written) easier to learn for children who are deaf. Most educational sign systems use ASL signs for vocabulary, presented in the same order as English is spoken, with additional letters finger-spelled to represent helping verbs and word endings (for example, adding the past tense ending *-ed* to a verb sign). Common educational sign systems include Manual English, Signed English, and Signing Exact English.

Gestural communication systems include fingerspelling using the American Manual Alphabet (see www.iidc.indiana.edu/cedir/kidsweb/amachart.html), and cued speech, where the speaker's hand makes shapes near the face as the speaker talks so as to supplement the information visible on the lips (LaSasso & Crain 2003; see also Blasi & Priestley 1998).

All of these options require adults to have a good ability to communicate in the chosen language system if the child is to learn abstract ideas and be successful in educational settings.

The family's choice

The family's choice of communication modality to use with their child is often based on the child's capabilities and response to earlier intervention efforts. But sometimes a family



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has a strong preference for a particular modality, such as speech or ASL, or they are strongly opposed to one of these communication modalities. These strong beliefs may become problematic for members of the education team who hold a different perspective on which system would work best.

Parents like Sandra's most likely want her to learn oral language because they believe it will be easier for her to function in the hearing world. Their wish that Sandra receive a cochlear implant as soon as possible supports their goal for her to be part of that world. Learning sign language may be difficult for a child if the parents themselves are not competent sign language users or committed to learning it fluently enough to assist their child (Easterbrooks & Baker 2002).

Parents who are strongly associated with the Deaf Community (typically adults who are deaf and use *only* ASL or who grow up as signing children of deaf parents) may reject the cochlear implant as a method of intervention and choose to teach their child ASL from infancy. They do not perceive hearing loss as a disability or problem that needs to be corrected and feel that their natural language, ASL,

is important in defining them culturally. Deaf children born into such families are unlikely to be enrolled in inclusive preschool settings.

The early childhood teacher or interventionist is more likely to meet and work with families like Jonathan's, who want their son to grow up "bilingual"—able to communicate in both ASL and spoken English. Deafness is familiar to Jonathan's family, and his parents realize that the use of signs is a viable communication strategy. On the other hand, they also want him to communicate in the hearing world. To support Jonathan's inclusion in the class, members of his team may suggest that his teachers learn the same sign language his parents use at home.

Some families may think that their child will not learn to speak if signs are introduced. However, research shows that the use of signs is effective in promoting oral language devel-

opment and that children will use speech to replace signs as they gain ability in oral language (Marschark & Spencer 2003).

Jonathan's teacher may wish to learn some of the key signs the family uses at home as well as signs she feels will promote Jonathan's social integration and development and learning in the classroom. She might begin with the signs for *name, toilet, more, friend, outside, eat, and play*, as well as the signs related to classroom interest areas and curriculum topics to be addressed. Family members or communication specialists may assist teachers with learning these signs. If such personal interaction is unavailable, teachers may refer to books (for example, Dennis & Azpiri 2005), articles, or Web sites (like www.masterstech-home.com/ASLDict.html) for further resources.

Using a few signs to help cue a child with a hearing loss into classroom routines is different from using a complete sign system that exposes a child to the full range of information and activities going on around her. Most early childhood educators are not proficient in sign language or knowledgeable about the speech/language needs of a child who is deaf or hard of hearing. Therefore, if the educational team feels that intensive educational services from a teacher of the deaf and hard of hearing or sign language instruction is critical to the child's development in the early intervention setting, the assistance of an interpreter or a teacher of the deaf and hard of hearing will be necessary to fully include the child.

When a family has made an informed decision about their child's communication modality, it is important to support that decision. Follow-

Following the family's preference in the educational setting best promotes the child's overall development by helping build a positive relationship between the family and the program.

ing the family's preference in the educational setting best promotes the child's overall development by helping build a positive relationship between the family and the program. In addition, when program staff clearly show respect for the family's viewpoint, the family is more likely to support efforts of the early childhood educator and collaborate effectively in the child's development.

Promoting development

Effective practices for including children with hearing loss in natural settings follow many of the guidelines endorsed by NAEYC (DEC/CEC 1993). One of the keys to a successful inclusion experience is the early childhood educator's positive and constructive attitude about children with special needs (Bricker 1995). Teachers can arrange a welcoming environment where a child with a hearing loss feels included by peers as well as teachers (Blasi & Priestley 1998). This process is part of the critical transition planning that is included in IDEA (Part C, Early Intervention). "Preparing Preschoolers to Welcome a Child with a Hearing Loss" lists a few suggestions.

In addition to a successful introduction, children with hearing loss will benefit from a developmentally appropriate program focusing on their overall development (Bredenkamp & Copple 1997). Such an environment emphasizes building bridges from children's basic communication skills to the communication demands of the curriculum (Easterbrooks & Baker 2002). Appropriate programs support the strengths of children with hearing loss while helping compensate for their lack of hearing. Universal design principles of selecting materials and equipment in early childhood settings allow children of varying communication abilities to gain access and engage in the curriculum (Friedman 2005, 53).

Children with hearing difficulties rely increasingly on their other senses, especially vision. Since many

Preparing Preschoolers to Welcome a Child with a Hearing Loss

Children can be incredibly helpful if the early childhood educator provides important information to them about including a child who has a hearing loss in their classroom. Here are suggestions:

- Implement activities that help children understand what it's like to have a hearing loss. For example, play games where you whisper or talk to children so softly they have difficulty hearing you, and then talk about how it feels. Have children wear ear muffs when they play together and keep them on long enough to experience the limitations. Show a video with the sound very low or off completely to help children think about the challenges of seeing people talk but not hearing or understanding what they say.
- Role-play situations where a peer faces the child with a hearing loss when interacting with him. Coach children in speaking slowly and clearly, but naturally.
- Have children decide ways to include a child with hearing loss as a member of their classroom. Four-year-olds may make suggestions that the adults didn't consider. Children are more likely to follow through on suggestions if they take ownership in welcoming the child.
- Help children understand that everyone has strengths as well as challenges. Ask all children to talk about things that are difficult for them and how they would like others to help them.
- Read books about children who have hearing loss to promote empathy. *Hooray for Harold: Dealing with Hearing Loss*, by Tim Peters; *Herbie Hears the Horn*, by Susan Chorost and Susan Stock; and other children's books about deafness are available through the Web site of the Alexander Graham Bell Association for the Deaf and Hard of Hearing (www.AGBell.org).

such children still have some hearing, maximizing their hearing is very important. One of the differences between children with hearing loss and children with normal hearing is that children with normal hearing process auditory information from their environment even when they do not look directly at the sound source. They overhear conversations from adults and children while playing or attending to other things. Children with significant hearing loss do not have access to such incidental language learning and need to be directed to the auditory language information in their day-to-day world.

For example, in the dress-up corner of Jonathan's class, children may talk

excitedly about family outings. However, Jonathan may not learn about the outings if he isn't directly included in the conversation. The teacher can assist Jonathan in learning this type of general information by having the class participate in a daily sharing time when children have an opportunity to talk about their experiences outside the classroom and by immersing Jonathan in language that describes a topic, making sure that pictures, drawings, or actual objects are present to tie in the visual component.

Gloria also will benefit when the teacher reviews information in a more structured and less noisy activity. While Gloria hears well enough when

concentrating, this task becomes tiring and more difficult for her in a setting where there is much background noise or when many individuals are talking at once.

The following three sections, "General Teaching Strategies," "Maximizing the Auditory Environment," and "Highlighting the Visual

Environment," present inclusion practices that promote the language development of children with hearing loss through visual and auditory means and general teaching practices. It is important to note that these practices can be used with any communication modality.

General Teaching Strategies

Speak using an ordinary tone/volume. Make sure the child's attention is focused on the speaker. Talk naturally and clearly and use simple phrases or simple but complete sentences, depending on the child's language level. Do not shout or exaggerate words or slow down your speech unnaturally. Highlighting lips with lipstick can assist a young child in following speech. A mustache or long hair obscuring the face can cause loss of visual information.

Clarify idioms. Explain idioms in context (for example, explain "It's raining cats and dogs" when you have used the expression after dashing inside during a cloudburst). This prevents misunderstandings and enriches the child's language.

Check with the child to ensure comprehension. Sometimes asking "Tell me what I just said" provides information about how much a child understands. However, many children with hearing loss have difficulty articulating their responses. Therefore, you may need to observe the child's actions for a short period to check for understanding. A perplexed look or doing nothing may indicate lack of understanding, and you will need to find additional, preferably visual, methods for getting the message across.

Institute a buddy system to facilitate a child's understanding of directions and curriculum content. Many times children understand another child better than they do an adult, so have a child's buddy explain the information again after you have finished. Furthermore, attentive peer modeling of both speech and behavior is an excellent resource for the child with hearing deficits.

Show real-life pictures when reading or talking about a topic, and use simple signs, point, or have on hand an example of the object you're explaining. Children with hearing loss need visual information to learn. Acting out experience-based language lessons or stories is helpful. Using environmental labels around the classroom can start such children on the road to learning language through print.

Provide language boards or books for children who have difficulty producing intelligible speech or manual signs. Try providing a flannel board with pictures, words, or other graphic symbols to help communicate information such as available interest centers or answers to routine questions. The child can point to the board to indicate a response or choice. Preteach key vocabulary words from a story that will be read to the class or send the book home with the child beforehand so the words can be introduced by the family (and reinforced afterward).

Conclusion

The composition of early learning environments has been changing as more children are being identified early in their lives as having special needs. A growing number of these are children with a significant hearing loss. This is an area in which many early childhood educators have limited background and training. A child's family and related service professionals, such as the speech and language pathologist and the audiologist, can provide the teacher with pertinent information regarding the child's level of hearing and appropriate strategies for communication or intervention. Early childhood educators have the critical role of gathering this information and implementing inclusive strategies to maximize development not just for children with hearing loss, but for all children in early learning programs.

References

- ASHA (American Speech-Language-Hearing Association). 2005. *Status of state universal newborn and infant hearing screening legislation and laws*. Online: www.asha.org/about/legislation-advocacy/state/bill_status.htm.
- Blasi, M.J., & L. Priestley. 1998. A child with severe hearing loss joins our learning community. *Young Children* 53 (2): 44-49.
- Bredenkamp, S., & C. Copple, eds. 1997. *Developmentally appropriate practice in early childhood programs*. Rev. ed. Washington, DC: NAEYC.
- Bricker, D. 1995. The challenge of inclusion. *Journal of Early Intervention* 19 (3): 179-94.
- Calderon, R., & S. Naidu. 2000. Further support for the benefits of early identification and intervention for children with hearing loss. *The Volta Review* 100 (5): 53-84.
- Dennis, K., & T. Azpiri. 2005. *Sign to learn: American Sign Language in the early childhood classroom*. St. Paul, MN: Redleaf.
- DEC/CEC (Division for Early Childhood of the Council for Exceptional Children). 1993. Inclusion. Position statement. Online: www.naeyc.org/about/positions/pdf/PSINC98.PDF.
- Easterbrooks, S., & S. Baker. 2002. *Language learning in children who are deaf and hard of hearing: Multiple pathways*. Boston: Allyn & Bacon.

Maximizing the Auditory Environment

Auditory FM system. In addition to hearing aids or cochlear implants, some preschool-age children with hearing impairment may also use an auditory FM system in the classroom. In that case, the teacher wears a microphone, usually on a cord around the neck, and the teacher's voice is amplified and transmitted directly into the child's ear-level receiver no matter where the child is in the room.

- **Be sure the child's amplification system is working effectively.** Check *daily* to see that the system is working, and learn how to troubleshoot if it is not. An amplification system is no help if the battery is dead or is not turned on!
- **Invite the child's audiologist to demonstrate and train staff in device use.** It is a good idea to have spare cords and batteries on hand. Parents or the audiologist may be able to assist with equipment needs.

Auditory distractions within the setting. A child with a hearing loss may be unable to follow directions if the learning area is close to a window onto a busy street.

- **Give thoughtful placement to learning centers** to reduce competing noise. For example, placing the reading area next to an active center like blocks may be distracting unless earphones are available for the reading area.
- **Check with the audiologist** about the best way for a child with a hearing aid or cochlear implant to listen to recorded material. There may be direct connections in the child's amplification device that the child can plug into.
- **Be aware of background noise**, which can mask essential auditory information. Air conditioners, heating systems, computers, and some lighting fixtures can contribute to background noise.
- **Reduce classroom noise** with acoustically treated low ceilings, carpeting, well-fitted doors, thick curtains, and rubber tips or old tennis balls on bottoms of chair legs on bare floors. Put sound-absorbing materials (cork bulletin boards, carpet squares, carpeted partitions) on hard, reflective surfaces; showcase artwork on the walls; and close doors during classroom time.

Highlighting the Visual Environment

Position children with hearing loss so they can focus visually on an activity. Children must be positioned in ways they can best learn from the teachers, from other children, and from the general class environment. Seat children with significant hearing loss where they can easily see an activity and the faces of teachers and peers.

Be sure lighting is appropriate.

Many children with hearing loss depend on speech reading to aid their understanding of language. Lighting that produces glare behind a speaker and obscures facial details is detrimental. It is best for the natural or artificial light to illuminate the speaker's face and not be behind the speaker, shining into the child's eyes. For example, at circle time the child with a hearing loss should sit with his back to the window so the natural light falls on the faces of the teacher and other children.

Be sure the child's physical relationship to you as teacher promotes positive social relationships with peers while enhancing learning. Many teachers tend to place children with special needs directly next to them or in their lap. Close proximity to the teacher may be necessary at times. However, if positioned close routinely, a child may be stigmatized or perceived as different by peers or as requiring special attention. Position a child with hearing loss where she blends in with peers as much as possible. When the child can see the teacher's face, she has better access to material resources like the illustrations in adult-shared picture books and incidental environmental print.

Flanders, J. 2002. Early intervention is the next step to independence. *Volta Voices* 9 (1): 23-24.

Friedman, S. 2005. Environments that inspire. *Young Children* 60 (3): 48-55. Online: www.journal.naeyc.org/btj/200505/04Friedman.pdf.

LaSasso, C., & K. Crain. 2003. Research and theory support cued speech. *New Directions in Deaf Education* 5 (1): 30-35.

Lynas, W. 1994. *Communication options in the education of deaf children*. San Diego, CA: Singular.

Marschark, M., & R.E. Spencer, eds. 2003. *Oxford handbook of deaf studies, language, and education*. London: Oxford University Press.

Perigoe, C., & R. Perigoe. 2005. Multiple challenges—Multiple solutions: Children with hearing loss and special needs. *The Volta Review* 104 (4): 211-392.

Yoshinaga-Itano, C. 2000. Development of audition and speech: Implications for early intervention with infants who are deaf or hard of hearing. *The Volta Review* 100 (5): 213-34.

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