

Learning and the hearing impaired

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Learning and the Hearing Impaired Students who are hearing impaired should be provided with special needs in a way that addresses the student's individual differences and needs. Advances in research on effective instructional practices can provide guidance for general education teachers and special education teachers who have little or no training in methods for students with hearing loss. Students who are typically classified as deaf or hard of hearing are described as individuals with hearing loss. Hearing loss can range from mild to profound.

The current regulations implementing IDEA define deafness as a hearing impairment that is so severe that the student is impaired in processing linguistic information through hearing (with or without amplification) and the student's educational performance is adversely affected (Turnball, Turnball, Wehmeyer, 2010). Compared to students with disabilities, students with hearing loss are among the smallest group. There are different characteristics of hearing loss that affect the learning in children that are hearing impaired.

The most severely affected areas of development in the person with a hearing loss are the comprehension and production of the English language. Most children with hearing loss have extreme difficulty in academic achievement. One form of hearing loss is a slight loss of hearing. In quiet environments, a child has no difficulty recognizing speech, but in noisy environments, faint speech is hard to recognize. Some children may have a mild form of hearing loss. The characteristics of children that have mild form classroom discussions are challenging to follow.

In a quiet setting in which the topic is known and the vocabulary is limited, the student has no difficulty in communicating. Faint or distant speech is difficult to hear even if the room is quiet. The next level of hearing loss is moderate. The student can hear conversational speech only at a close distance. In classroom discussions or group activities it is a challenge to hear what is being said. Moderate-severe is the next level of hearing loss in a child or individual. Students can hear only loud, clear conversational speech and has much difficulty in group situations.

At this time speech is noticeably impaired though understandable. Children with severe hearing loss cannot hear conversational speech unless it is loud and even then, cannot recognize many words. Background sounds can be detected, though not always identified and their speech is not understandable. The most devastating type of hear loss is profound. The student may hear loud sounds but cannot hear conversational speech at all. Vision is the primary source of communication. If their speech has developed at all it is not easy to understand.

Hearing impaired children are born with an innate ability and desired to communicate and their language delays will range from mild to severe according to the level of their hearing loss. Professionals commonly use one of three approaches to teach communication skills to students with hearing loss-oral/aural, manual, or total communication (Turnball, Turnball, Wehmeyer, 2010). Oral/aural communication promotes the use of the hearing aid or cochlear implant which emphasizes sound amplification.

Manual communication or the use of sign language is also used to help children communicate.

Sign language is the combination use of hand, body and facial movements to express both words and concepts. Another form of sign language is fingerspelling. The ASL or American Sign Language is the most commonly used sign language used today. Cued Speech is a visual communication system which uses eight handshapes in four locations ("cues") in combination with the natural mouth movements of speech to make all the sounds of spoken language look different. The shapes of the hand identify consonant sounds and the locations near the mouth identify vowel sounds.

A hand shape and a location together cue a syllable. Cued speech makes the student aware of the mouth movements needed to make speech sounds.

Cued speech is often used with the use of the cochlear implant. Children with hearing loss may use hearing aids or have a cochlear implant to help them academically as well as function outside of school. Upon completion of hearing tests by an audiologist it can be determined the option is best for the child. Audiologists have the skills to participate in the child's rehabilitation and treatment.

Hearing aids amplify sounds but do not correct the child's hearing. The most common type is behind the ear aid and is more commonly used by children as well as adults. The hearing aid is more durable for children and is flexible allowing for the growth of the child. Children with hearing loss are fitted with hearing aids which meet specific criteria, including appropriate gain, sound

pressure levels, and frequency specifications. The cochlear implant is also another form of assistive technology available to students.

The cochlear implant is an electronic device that is surgically implanted under the skin behind the ear and contains a magnet that couples to a magnet in a sound transmitter that is worn externally (Turnball, Turnball, Wehmeyer, 2010). The implant picks up sound by a microphone and sends it to a speech processor which filters, analyzes, and digitizes the sound into coded electrical signals. The receiver delivers electrical stimulations to the electrodes in the cochlear and then is carried to the brain through the auditory nerve.

This implant does not reestablish hearing but provides sound to those that otherwise cannot obtain sounds. Routine checking of the external components are checked regularly to ascertain if the devices are functioning properly. Batteries are replaced as needed either by a capable student, parent or teacher just as a hearing aid would be. Auditory Brainstem Implants may also be used for students with specialized medical conditions such as neurofibromatosis. This device bypasses the cochlea and auditory nerve to transmit sound directly to the brainstem and provides access to sound.

The prospects for ABI users to understand speech varies from those that use the cochlear implants or hearing aids. In addition to hearing aids and cochlear implants, children with hearing loss sometimes benefit from assistive listening devices to supplement and support their personal amplification, especially in the classroom. Classrooms that are uncarpeted,

hard surfaces, windows without curtains, and a lot of student noise make it challenging for students that have hearing loss. With the use of FM systems, sometimes called auditory trainers noise may be reduced in the classroom by improving the signal to noise ratio.

Teachers or whoever is speaking wears an FM transmitter with a microphone that enables the student to hear the voice of the speaker at a consistent volume regardless of the teacher's location in the classroom. The use of classroom amplification systems or sound field systems may also be used for the hearing impaired depending on their degree of hearing loss. Speakers are either mounted on ceiling, walls or desktops along with the transmitter and microphone which allows the voice of the speaker to be amplified throughout the classroom as well as the student's desk.

This is used for those students that are less severe hearing losses. Assistive Technology as well as interpreters has given students with hearing loss the opportunity to succeed in school. Closed-captioned technology translates dialogue from spoken language to printed forms (captions) that can be comprehended by hearing impaired students. Computers and the Internet have also given students a learning tool to help them with academic. Students who are hearing impaired may benefit from the use of additional assistive technology which supports the classroom learning environment.

Closed captions are available when videos, television, and CD's are used in the classroom. This provides readable text while audible speech is presented in the classroom. Another type of assistive technology is real time captioning. Real time captions are created as an event takes place. A

captioner uses a stenotype machine with text relay to a computer and the student is able to read text at the same time the teacher is teaching the lesson. This requires that the child be able to read sufficiently to benefit from the device.

Progress in communication technology continues to be made through speech to text, speech/text to video sign language, speech/text to computer generated voice and computer generated signing avatars. With the use of technology hearing impaired students are allowed the luxury of a quality education deserved by all children. Special Education students or students with disabilities are offered the same quality education as a regular student. There are three types of services that benefit children with disabilities which are inclusion, self-contained, and resource.

These services enable them to participate in classrooms alongside their peers in academic, extracurricular, and other school activities. The Individuals with Disabilities Act of 1997 (IDEA) required that disabled students, to the extent possible, be taught with nondisabled students in the regular classroom (Nichols, Nichols, 2010). Inclusion is one type of service that a disabled child could be placed in. In an inclusion classroom which is also known as a least restrictive environment class students spend all or at least half of the day in a regular education classroom. Most educators agree that children with disabilities should be included in regular education classes. The majority of general education teachers support the notion of including hearing impaired children in a regular classroom environment. There are four phases of inclusion which are mainstreaming, regular education initiative,

inclusion through accommodations and inclusion through restructuring. Students are mainstreamed into general education rooms typically for nonacademic classes such as art, music and physical education.

The next phase is the regular education initiative which both special educators and regular educators come together to provide services needed for a student to be successful. Accommodations are put in place for students that have special needs to ensure physical and cognitive access to the environment, assistive technology, and support from other people. Lesson plans are modified to support children with disabilities so that they have the same opportunity for success as their peers.

Inclusion through restructuring requires general and special education teachers to work in partnerships with related service providers, families, and students to provide supplementary aids and services and special education and related services (Turnball, Turnball, Wehmeyer, 2010). The curriculum for hearing impaired students should include access to the general curriculum with appropriate accommodations and modifications, facilities that are acoustically and visually appropriate, instructional strategies that are effective with students who are deaf or hard of hearing. Special literacy needs, expanded curriculum options and a continuum of transition services. Work given to students with disabilities is modified and accommodations provided according to their Individualized Education Plan (IEP). The IEP of a student with hearing loss should address how the student presently communicates, goals and objectives for receptive and expressive language development and supports to accommodate communication.

Children that have hearing loss should have the same learning objective comparable to those used with all students such as lessons should be: *

- * focused on an activity and immediately engage students in learning *
- * development of vocabulary should occur before and during every lesson *
- * logical order of steps which should include the modeling of what is being taught *
- * objective should be related to SOL's (Standard of Learning) and or IEP goal *
- * new knowledge should be attached to prior knowledge *
- * opportunity should follow practice to reinforce the concept *
- * lessons should conclude with a summary graphics should be used to convey lessons

Hearing impaired students often do not have the background knowledge which new knowledge can be built. In order to promote academic success it is important to develop the background knowledge before new knowledge can be accessible. Teachers should include group sharing of experiences, field trips, video/DVD presentations, computer software, role playing and hands on activities. Computers and internet also assists students who are hearing impaired have access to educational resources needed to complete assignments.

Some research suggests that children who are deaf or hard of hearing exhibit the same emergent literacy behaviors as their hearing peers (Hoffman, Wang, 2010). Classrooms for the hearing impaired student should have special features. The acoustic and visual characteristics of classrooms should be made to accommodate the needs of the students. Hearing aids and cochlear implants may increase their ability to hear sounds including background noise, air conditioning, doors shutting as well as students

moving around the room. This noise interferes with the student's ability to access auditory input for learning and communication.

When placing students that are hearing impaired certain considerations should be made. They should be placed in a quiet area of the building, avoid open classroom settings, have carpeted rooms, hang curtains over windows to absorb sound, and place rubber tips or tennis balls on chairs to reduce the noise when they are pulled out. With the use of interpreters in educational settings students and teachers both have the advantage of communicating. Interpreters translate the spoken word into signs for students with hearing loss.

Some perform additional duties within the school or classroom, such as tutoring, general classroom assistance, educational planning, and sign language instruction (Turnball, Turnball, Wehmeyer, 2010). Students become to rely on them as well as the teacher for instruction and guidance. Interpreters are provided for students with disabilities to help them communicate to the learning world around them. After decades of exclusion from public education, students with disabilities in the United States now have rights to educational opportunities that include high expectations and yet are tailored to meet their individual needs (Cawthon, 2009).

Students with disabilities deserve the right to a quality education and to have the accommodations made available for them to succeed. With the use of well educated teachers as well as special education teachers children with disabilities should academically achieve success. References Turnbull, A. , Turnbull, R. , & Wehmeyer, M. (2010). Exceptional lives: Special education in

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