

Understanding Students with Hearing Loss

Defining Hearing Loss

- Deaf and hard of hearing describe hearing loss
- Unilateral (loss in one ear) and bilateral (loss in both ears)
- IDEA defines 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 that adversely affects the student's educational performance
- The severity of hearing loss is measured through decibels (dB)
 - Deaf = 70-90 dB
 - Hard of hearing = 20-70 dB
- Congenital deafness is a rare condition
- Deaf community prefers term "deaf child" to hearing impaired

Prevalence of Hearing Loss

- Low incidence disability
- In 2006, 71,589 students with hearing loss between the ages of 6 and 21 received some type of special education services (U.S. Dept. of Ed.)
- Preschool programs (ages 3 to 5) served another 8,123 children, equivalent to about 1% of the total number of young children in preschools

The Hearing Process

- Hearing Process: Audition
- Sound waves are vibrations in the air
- Sound is measured in units that describe the frequency and intensity of these vibrations
 - Intensity: measured in decibels (dB)
 - Frequency: measured in hertz (Hz)
 - Results are charted on audiograms

Characteristics

- Speech and English language development
 - Delays in language development
 - Communication options:
 - Oral/Aural
 - Manual communication
 - Sign language and finger spelling
 - American Sign Language (ASL)
 - Manually coded English
 - Total or simultaneous communication

Academic Achievement

- Because educational curricula are so language-based, communication and learning are strongly linked
- There are rising numbers of students with hearing loss from diverse backgrounds
- Students who are hard of hearing are among the least appropriately served group

Social and Emotional Development

- Communication barriers affect a student's social and emotional development
- Four factors affect this development:
 - parent-child interaction
 - peers and teachers
 - awareness of social cues
 - an increasing sense of isolation and loneliness

Determining the Causes

- Congenital - present at birth
- Acquired - developed after birth
- Genetic causes
- Prenatal causes
 - Hypoxia (lack of oxygen)
 - Rubella
 - Other illnesses, such as toxoplasmosis, herpes virus, syphilis, and cytomegalovirus (CMV)
 - Premature infants

- Postnatal causes
 - Bacterial meningitis
 - Acute otitis media (ear infection)
- Postlingual causes
 - Trauma to skull, excessive noise

Determining the Presence

- Diagnostic Assessment
 - Screen all newborns for hearing loss before 1 month of age
 - Evaluate all infants who screen positive before 3 months
 - Early intervention (initiated before 6 months)
- Medical personnel
 - Otolgologist (physician)
 - Audiologist (measures hearing)
- Hearing aids
- Cochlear implants

Determining the Nature of Specially Designed Instruction and Services

- Educational evaluation
- How hearing is tested
 - Audiometer
 - Audiogram (behavioral)
 - Tympanography
 - Speech audiometry

Partnering for Special Education and Related Services

- Using interpreters in educational settings
- Determining Supplementary Aids and Services
 - Managing the Listening Environment (acoustics)
 - Sound-field amplification system
 - Loop systems
 - Assistive Technology
 - Closed captioned technology
 - Computers and the Internet
 - C-print : Real time speech translations

Planning for Universal Design for Learning

- Communication methods
- Total Communication fallen out of favor
- Debates over Manual Coded English
- Bilingual/Bicultural model
- Lesson planning
- Planning for Other Educational needs
 - Most students with hearing loss attend public schools
 - Must make an effort to preserve deaf culture

Measuring Students' Progress

- Problems assessing students with hearing loss
- Reading and writing assessments
 - Cloze procedure
 - Oral Reading test
 - Story retelling
 - Writing assessment
- Making accommodations for assessment
 - Assistance before test on new forms of testing
 - Longer time period
 - Interpreting the directions
 - Changing the format and content (rephrasing)

	125	250	500	1,000	2,000	4,000	8,000
0	(0–15 dB) <i>Normal</i> —There is no impact on communication.						
10							
20	(16–25 dB) <i>Slight</i> —In noisy environments, faint speech is difficult to understand.						
30	(26–40 dB) <i>Mild</i> —Faint or distant speech is difficult to hear, even in quiet environments. Classroom discussions are challenging to follow.						
40	(41–55 dB) <i>Moderate</i> —Conversational speech is heard only at a close distance.						
50	Group activities in a classroom present a challenge.						
60	(56–70 dB) <i>Moderate-severe</i> —Only loud, clear conversational speech can be heard, and group situations present great difficulty. Speech is intelligible, though noticeably impaired.						
70	(71–90 dB) <i>Severe</i> —Conversational speech cannot be heard unless it is loud;						
80	even then, many words cannot be recognized. Environmental sounds can be detected, though not always identified. Speech is not always intelligible.						
90	(91+ dB) <i>Profound</i> —Conversational speech cannot be heard. Some loud						
100	environmental sounds may be heard. Speech is difficult to understand or may not						
110	be developed at all.						
120							

