



## UNDERSTANDING COMMUNICATION ACCESS

Cheryl D. Davis [davisc@wou.edu](mailto:davisc@wou.edu)  
Samuel R. Atcherson [sratcherson@ualr.edu](mailto:sratcherson@ualr.edu)

### SUMMARY

Words are only one piece of what we pick up auditorily. When we have normal hearing, we are able to discern words in our own language from gibberish or other languages; we recognize the difference between speech, music, and environmental sounds; we can locate where sound is coming from; we can often identify the age range and gender of the speaker, the presence of an accent, and we can sometimes even identify who the speaker is, solely based on sound. In addition, we get vital grammatical and social cues auditorily. We can hear when a speaker has finished a thought, and similarly can make decisions about when it is appropriate to interrupt. Finally, we hear words and apply meaning. When the hearing mechanism is damaged, these abilities are compromised.

### KEY CONCEPTS

Service providers may not see the need to accommodate individuals with less than profound hearing losses, thinking:

- The label “hard of hearing” indicates the individual does not have a serious impairment,
- People who can hear well enough to make a phone call would not qualify for an accommodation,
- Clear speech indicates that the person does not have a severe hearing loss,
- A classroom accommodation would not be necessary if one is not needed in the intake or application interview,
- People who speechread or who have hearing aids or cochlear implants do not need accommodations.

Many would be surprised that none of these statements are true.

Why might someone be able to communicate effectively during the intake interview but face challenges on the job or in the classroom? Hearing aids are very effective in quiet, one-on-one situations. In an intake interview, the counselor usually uses his or her best listening skills and maintains eye contact. This gives the listener full access to the speaker’s face. In addition, the conversation

likely is taking place in a quiet, more optimal listening environment, and it is a conversation with give and take. Facial expressions and body language greatly facilitate understanding. In a lecture in school or a training or meeting at work, this does not typically apply. There is limited eye contact, minimal opportunity for response or feedback, it is less likely to occur in an optimal listening environment, and at the same time, the listener is held completely responsible for the information presented.

### Physical Properties of Sound

Three physical properties of sound impact our ability to hear: distance, reverberation, and signal-to-noise ratio (SNR). The greater the distance from the sound source, the less impact the sound waves will have on our eardrums. At the source, a sound might be 65 dB, but at 4 feet it is 53 dB, and at 16 feet it is 41 dB (Blair, 1990). Small changes in distance can impact audibility. Reverberation results in echoing of sound. Even small echoes can have a negative impact on the clarity of sound. SNR refers to how loud the sound we want to hear (signal) is compared to the background sounds (noise) we are trying to overcome. Individuals who experience a hearing loss need the signal to be at least 15 dB louder than the noise, whereas individuals with normal hearing require a SNR of only 6 dB (Blair, 1990). Additionally, in noisy settings, hearing aids and cochlear implants may work against the individual by amplifying background sounds along with the signal. Assistive listening devices or other accommodations may be required.

### How Much is Enough?

The audiogram charts speech sounds with frequencies ranging from low to high across the top and loudness ranging from softest (0 decibels) at the top to loudest (110 decibels) at the bottom. Some speech sounds are high pitched and soft (e.g., /s/, /f/) and others are lower pitched and louder (e.g., /g/, /b/).

What is a person hearing and how much information is needed to understand the entire message? As an

example, hearing loss in the higher frequencies is the most common type of loss. In looking at a mapping of common speech sounds by frequency or pitch and decibel (dB) or loudness, it can be seen that even a mild high frequency loss means the individual loses the sounds s, f, t, h, p, th, sh, ch. These are extremely common sounds. Additionally, in English the s and t sounds provide plural and past tense information, and the difference between can and can't. When these key sounds are missing, the message becomes ambiguous. So, if you can hear "most" sounds, isn't that enough?

In looking at a mapping of common speech sounds by frequency or pitch and decibel (dB) or loudness, it can be seen that even a mild high frequency loss means the individual loses the sound .

The above sentence is the third sentence in the previous paragraph. Only the high frequency sounds listed above have been removed. Not counting the list of sounds at the end, 74% of the letters of the original sentence could be heard, but only 43% of the words are left intact. What percent of the message would the individual understand? Being able to hear 75% of a message may seem adequate, but functionally, it is devastating.

## SUGGESTIONS FOR ACTION

- Remember that hearing aids and cochlear implants do not provide "20/20" hearing for the individual with hearing loss.
- Evaluate the setting and the sound source, not simply the individual's hearing.
- Ask audiologists for functional information about how the individual functions in noise.
- Understand the importance the brain plays in interpreting sound, and realize that this varies greatly among individuals.
- Recognize that, as is true for the wheelchair user, some environments will be accessible to the individual with hearing loss, while others will not. Individuals should not need to fear that if they do not request accommodations in all settings, they will not be considered "disabled enough."
- Consider all accommodation options, including speech-to-text services, assistive listening devices, oral interpreters, and moving the classroom.

---

## ADDITIONAL RESOURCES

Blair, J.C. (1990). Front-row seating is not enough for classroom listening. In Flexer, C., Wray, D., & Leavitt, R (Eds.) *How the student with hearing loss can succeed in college: A handbook for students, families, and professionals*. Washington, D.C., Alexander Graham Bell Association for the Deaf.

For more information contact:

**PEPNet-Northeast Central Office**

Rochester Institute of Technology  
National Technical Institute for the Deaf

52 Lomb Memorial Drive

Rochester, NY 14623

(585)475-6433 (V/TTY) (585)475-7660 (Fax)

pepnetnortheast@pepnet.org

