

Voice amplification systems



Context

Assistive technology is developing to support hearing impairment and its needs. Understanding speech is the main problem for Deaf and Hard of Hearing (DHH) students, voice volume can be artificially raised with different devices, some of these are provided as part of speech therapy, like hearing aids or cochlear implants, but some can be externally arranged as personal or ambient aids, in order to amplify voice and sounds.

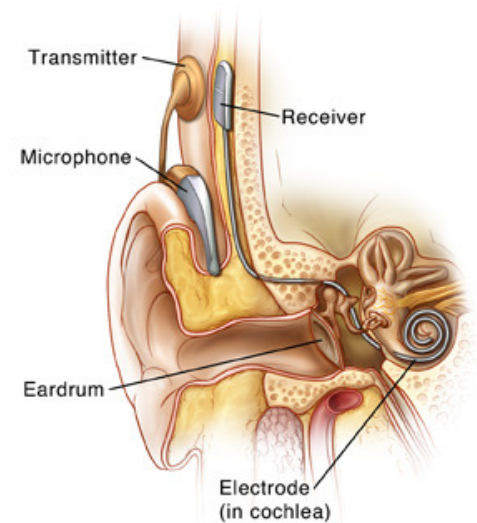


How can deaf people hear?

Hearing impairment has different forms and can come with many differences: profound deafness (the person cannot perceive any sound at all) can only be intervened with an internal prosthesis called **cochlear implant**.

This implant must be inserted surgically, it simulates the functions of the cochlea (organ of the internal ear dedicated to part of the translating process of audio-sensorial info into neuronal impulses).

This kind of prosthesis help the person to hear better but can also lead to different problems and unexpected outcomes.



Hearing aids are instead a kind of acoustic prosthesis that amplifies sounds. It is used by people with partial deafness (who have hearing residual capacity) to amplify and correct the kind of sounds they have difficulty perceiving.

Deaf people can effectively be helped to perceive sound, but this must be done when they are young to ensure positive outcomes. If the prothesisation comes too late, during language development the person will have major impediments in the act of speaking.



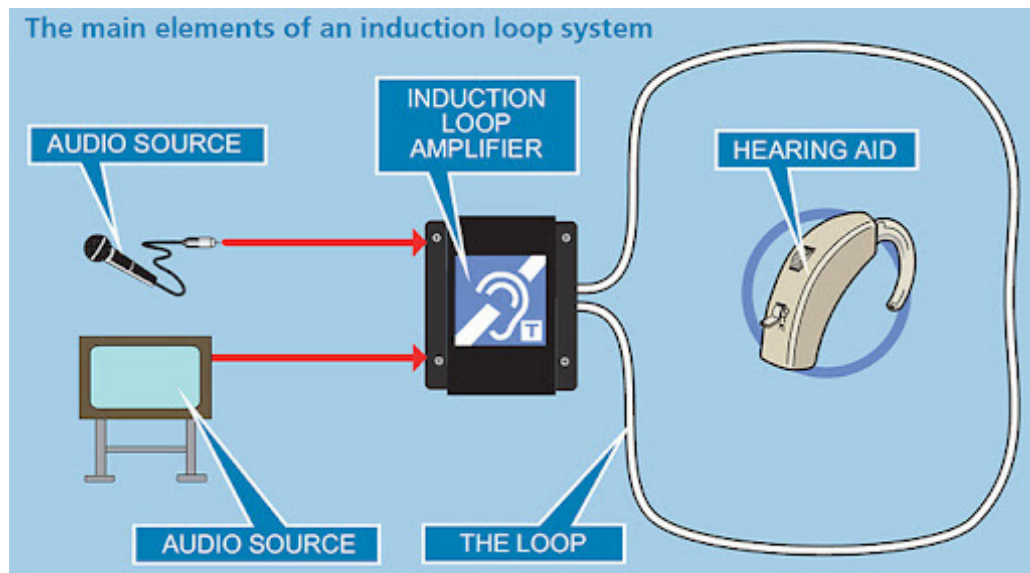
Direct voice transmission

One useful feature of hearing implants is the **Telecoil system**: this is a direct transmission to the hearing aid, possible when the amplification system (**induction loop/hearing loop**) is installed in the environment. Home versions of these amplification systems exist, it is possible that the students with hearing impairment have one of these installed. If they do, It is suggestable to encourage their use and ensure students switch their system on before lesson.



How does Telecoil system work?

Hearing loop (or induction loop) is a sound amplification system that can directly connect a microphone to hearing aids through radio signals. The hearing loop provides a magnetic, wireless signal that is picked up by the hearing aid when it is set to 'T' (Telecoil) setting.



FM systems, radio signals of the same kind that work with Telecoil systems, can be installed in the class environment or at home.

Infrared systems also work like FM systems and are connectable to hearing aids; this is often installed in conference rooms or courtyards.

These technologies permit to hearing impaired with hearing aid or cochlear implant to pick up voice of the speaker directly, without external sound interference.

How to support hearing impaired students?

To support hearing impaired students' comprehension during distance learning, be sure to:

If possible, ask the students to switch Telecoil system on

Speak clear and not too fast (open your mouth)

Enable subtitles through dedicated programs or apps

Use an external microphone (to avoid sound interference and popping)

Check frequently with the student if he/she has understood the lesson or if any clarification is needed

Try to stay still when speaking and look directly at camera

Resources

If you want to amplify your knowledge in this topic, visit the website of the National Institute on Deafness for: **Assistive technology and devices for people with hearing, voice, speech or language disorders**. This website is always up to date with latest research in the field of technology related to hearing impairment and deafness.