Hearing Assistive Technology 101

2018

Independent Living Conference

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Agenda

- Introduction
- Why Aren’t Hearing Aids or Cochlear Implants Enough?
- Listening Needs & Situations
- Hearing Assistive Technology (HAT)
- All About Apps
- Non-Technology Solutions
- Questions
Who Am I?

WHO, WHO, WHOM!
Why Aren’t Hearing Aids or Cochlear Implants Enough?
1) Background Noise
2) Reverberation
3) Distance

- How loud the sound is compared to ambient noise and how far away it is from you.
- Hearing Aids and Cochlear Implants work best in a 6-8 foot range.
Listening Needs & Situations
TYPES of Listening Situations

- Face-to-Face
- Media
- Telecommunications
- Alerting
WHERE does the listening take place?

- Home
- Work
- Community
- Other
Identify Challenging Situations

- Does the problem situation occur in:
  - Quiet locations
  - Noisy locations
  - Both?

- Does the situation happen when you are communicating:
  - One-to-one
  - In a small group (2-4 people)
  - A large group (5+ people)
  - Under all three circumstances
# Listening Needs & Situations Assessment

<table>
<thead>
<tr>
<th></th>
<th>Face-to-Face Communication</th>
<th>Media</th>
<th>Telecom- munications</th>
<th>Alerting</th>
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<tr>
<td>Home</td>
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<td>Work</td>
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<td>Community</td>
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<tr>
<td>Other</td>
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</tbody>
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- Home: Example: Family dinners with a lot of people and “cross-talk”.
- Work: Example: Conference calls, Large group meetings.
- Community: Example: Church.
- Other: Example: YouTube with “auto” captions.
Prioritize

- Review the table
- Which situations are most important to you?
  - Rate them (most to least important)
Examine Solutions

- HAT = Hearing Assistive Technology
- Non-technology solutions
Hearing Assistive Technology

HAT
What is a Telecoil/T-coil?

A special circuit inside the hearing aid is designed to pick up sound sent via a magnetic signal.
Headphones, Silhouettes, Neckloops
Assistive Listening Devices (ALD’s)

- Personal devices
  - Input from microphone or devices (TV, phone, computer)
  - May use Bluetooth, streaming, FM, infrared, induction loop or direct connection

- Large area devices
  - Transmission from central sound source (theater, church, conference)
  - May use FM, infrared, induction loop or direct connection
Personal FM Systems
Large Area Loop System

Diagram showing the components of a large area loop system:
- Sound from Microphone
- Hearing Loop Amplifier
- Magnetic Field
- Clear Sound to T-Coil/Ear

A person speaking at a podium connected to a loop driver connected to a sound system.
Induction Loop Systems (one-on-one): Counter loop
Large Area Infrared Listening System

Source: https://soundinduction.co.uk/pages/infrared-hearing-systems/
TV/Stereo Listening Systems
Amplified Phones
Cell Phones

**FIRST STEP:** What are your hearing aids/CIs compatible with?

Look for hearing-aid-compatible (HAC) phones

- Will you listen to the phone:
  - Acoustically (M) = microphone mode
  - Telecoil (T) = telecoil mode
  - "M3", "M4", "T3" or "T4" = HAC compliant

- Personal choice

Try before you buy

Wireless Caption Services
Captioned Telephones
How Caption Telephones work

Captions are provided by a free Captioning Service that connects automatically (over the Internet) to every telephone call.
# Captioned Telephone Options

<table>
<thead>
<tr>
<th></th>
<th>Landline</th>
<th>VOIP</th>
<th>Mobile</th>
<th>Web Browser</th>
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<tr>
<td><strong>CapTel®</strong></td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
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<tr>
<td></td>
<td></td>
<td>(some models)</td>
<td></td>
<td>PC/Mac (Hamilton CapTel® or Sprint CapTel®)</td>
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<tr>
<td><strong>CaptionCall®</strong></td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>X</td>
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<td></td>
<td>iPad only</td>
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<td><strong>ClearCaptions</strong></td>
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<td>PC/Mac</td>
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<tr>
<td><strong>InnoCaption</strong></td>
<td>X</td>
<td>X</td>
<td>√</td>
<td>X</td>
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<td>iPhone, Android</td>
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</table>
Chris and the supervisor’s name is Gayle. One of the other dynamics just sort of in the case maybe explicit or implicit is is that because this unit is being managed this way there is a whole dynamic in the entire offers of you know.
Video Communications

Glide

FaceTime
Environmental Alerting Systems

- Wakeup/alarm clock
- Doorbell/door knock
- Telephone/Videophone/Cell Phone alert
- Fire/Smoke/CO alarm
- Burglar alarm
- Child monitoring
- Window/Door opening
- Timers (appliances, cooking)
- “Caretaker” situations
- Doormats and Bedmats
Alarm Clocks
Fire/Smoke & CO Alarms
Doorbells/Door Knocker
Baby Crier/Monitoring
Telephone/Videophone/Cell Phone Alerts
Combination Systems
“Smart Home” Technology

- Amazon Alexa/Echo
- GOOGLE Home/Home Max/Mini
- Apple Home Kit
All About Apps
FAQ’s

- What are they?
  - Software “applications” for your smartphone or tablet

- Types of Apps?
  - Desktop, Mobile, Web

- Where do I get them?
  - Google Play Store for Android
  - App Store for Apple

- What will it cost me?
  - Free
  - One time charge vs. Monthly use charge
Apps for the Deaf and Hard of Hearing

- There are many!
- Hearing aids or CI’s themselves may have an app (control volume, programs, etc.)
- Speech-to-text
- Measuring sounds around you
- TV
- Environmental alerts
- Live theater
- Hearing loss simulator
# Speech to Text Apps

<table>
<thead>
<tr>
<th>Dragon Dictation</th>
<th>Live Caption</th>
<th>AVA</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Dragon" /></td>
<td><img src="image" alt="Live Caption" /></td>
<td><img src="image" alt="AVA" /></td>
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- **iPhone**
- **iPad**
- **Android**

- Pair with Bluetooth devices
- Stream the app to a TV (for larger groups)

- **iPhone**
- **iPad**
- **Android**

- Pair with Bluetooth devices

- **Free**: talk with 1 or more friends *up to 5 hours*/month
- **$29.99/month**: *no monthly limit*
Decibel X

- iOS and Android
- Pre-calibrated, accurate and easily portable sound level meter
- Standard measurement range from 30 to 130 dB
- FREE
SoundMeter

- Follows OSHA (Occupational Safety and Health Administration) guidelines
- Gauges the level of sound around you and provides visible alerts when the decibel reaches a dangerous level or when your exposure has gone on too long
- Safety screening tests for home appliances and kids’ toys, as well as a calibration feature for your home theater or speaker system
- $19.99, requires iOS 5.0 or later for iPhone, iPad or iPod Touch
TV Louder

- Uses the iPhone microphone to listen to TV sounds, enhances and amplifies sound
- Use your cell phone with neckloop, headphones, or earbuds
- Intended for entertainment and shouldn't be used in place of a hearing device
- Help you hear the TV without having to constantly adjust the volume or make others watching with you uncomfortable
- Free (requires iOS 7 or later for iPhone, iPad or iPod Touch)
Audio from any live TV program streamed right to your phone
Must be connected to Wi-Fi or a cellular network (3G, 4G LTE, etc.)
Requires your location (iOS Location Services)
Currently the app supports 100 channels
Use the app’s camera function to take a picture of the show you’re watching, and the audio will sync to your phone automatically
Listen through headphones (or stream it directly to your hearing aids with smartphone-compatible models)
Free (Apple and Android)
Sound Alert

- Technology by Braci
- Alerts user to ringing phone, doorbell, beeping of the microwave, smoke alarms, baby crying, and honking cars, etc.
- Your phone will flash or vibrate when it hears noises that you specify
- Free (Apple and Android)
Galapro

- “Galaprompter”
- Captions LIVE theater shows
  - Subtitles
  - Closed captioning
  - Dubbing (another language)
  - Audio describe
  - Amplification
- Requires Wi-Fi connection
- Free (iPhone, iPad)
Hearing Loss Simulator

- Enter your specific type of hearing loss and play back to family/friends how you perceive their speech.
- Helpful tool to share what it’s like to live with hearing loss!
- $1.99 (Requires iOS 4.2 or later for iPad)
Non-Technology Solutions
# Friends and Enemies of Effective Communication

| Friends                                      | Enemies                                                        |
|----------------------------------------------|                                                               |
| Round tables                                 | Long rectangular tables                                       |
| Carpets and low ceilings                      | Rooms with all hard surfaces                                  |
| Good lighting                                | Glare behind speakers                                         |
| Mouths that move, good elocution             | Mustaches and beards                                          |
| Ability to control the space                 | Background noise, especially conversations                   |
Questions?
Contact Information

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Resources

- Massachusetts Commission for the Deaf and Hard of Hearing (MCDHH)
  - www.mass.gov/eohhs/gov/departments/mcdhh/
- Association of Late-Deafened Adults (ALDA)
  - www.aldaboston.org
- Hearing Loss Association of America (HLAA)
  - www.hearingloss.org