

Technology Accelerator Project

Tools for Vision

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About Me

- Over 50 years living with a progressive vision loss.
- Started losing vision in elementary school and was legally blind (20/200 acuity) by high school.
- BA in Sociology and Business Administration (Beaver college 1979)
- Master of Science Low Vision Therapy (Salus University 2013)
- 25+ years' experience in technology instruction and consultation for vision loss

Our Goals for Today

- Discover Simple Adaptations and Devices for Daily Living
- Discover technology for magnification.
- Discover audio and Braille options for reading.
- Discover Accessibility for Vision on computers and smart mobile devices.
- Discover tools for safe travel.
- Discover virtual assistance, smart speakers, mobile phones, and wearable devices.

Simple Adaptations and Devices

- Tactile and color contrast dots
- Task lighting and lighting controls
- Bold line paper, writing and signature guides
- Talking clocks, timers and watches
- Voice recorders

Technology for Magnification

- Desktop systems
- Portable devices
- Devices with capture and speech output(OCR)

Examples of Magnification Technology



Audio and Braille Technology for Reading

- Talking Book Players
- readers

Examples of Talking Book Players



Example of Braille Technology



eReaders

- Kindle includes display options for font size, line spacing and color contrast. VoiceView screen reading possible on some Kindle devices
- National Talking Book Service devices

Accessibility for Vision on computers and smart mobile devices

- Windows Computers
- Apple Computers
- Chromebook
- iPhone and iPad
- Android phones and tablets

Windows Accessibility for Vision

- Magnifier enlarges text, images and controls with options of a lens view, full magnification view and line view
- Narrator is the screen reader with options for voice, rate, pitch, verbosity and language
- To enable these options go to the Settings from start menu, choose accessibility followed by choosing vision

Apple (Mac)computers

- Zoom is the magnifier to enlarge text, images and controls of a screen. Has options for type of view including full screen magnification and lens view
- Voice Over is the screen reading option for vision. Options for voice, rate, pitch and language
- To enable go to system preferences , choose accessibility, vision

Chromebook

- Magnifier will enlarge all text, images and controls
- Chromebox is the screen reader that will verbally provide screen reading and prompts
- To enable go to the systems tray, choose accessibility and vision

iPhone and iPad

- Zoom magnifier provides screen magnification and uses gesture commands pinch to enlarge and open pinch to return to typical view. Once enabled you can toggle between magnified and typical view with three finger gesture commands
Voice Over is the screen reading software that requires alternative gesture commands, will read what is under your finger
to enable choose the Settings icon, choose accessibility and vision
Highly recommended that you follow the tutorials included when enabling either Zoom or Voice Over

Android phones and tablets

- Magnifier is the screen magnification option. Several options are available on how you wish to magnify screen elements
- Talk Back is the screen reader option where text under the finger is read aloud and requires gesture commands to perform an action.
- To enable select the Settings icon, choose accessibility and vision. Some models of Android phones will give an option when powered on to enable Talk Back.

Devices for Safe Travel

- Devices described should never replace use of a white cane or dog guide!
- Mobility and orientation training is necessary for safe travel with or without these devices
- Devices are designed for obstacle detection, GPS orientation and future development in indoor wayfinding.

Obstacle Detection

- Vibration or sounds are used to identify an obstacle in the path of the user.
- Crowded environments will detect obstacles on a more frequent basis and can be overwhelming.
- Current devices include the WEWalk cane, Mini Guide and a few other hand-held devices
- The WeWalk cane works with use of an app to set-up and determine vibration level and detection distance for indoor and outdoor environments.

GPS and Indoor Wayfinding

- Several apps are available for travel both walking as well as vehicle travel.
- Google Maps, Apple Maps are free and do route planning and turn by turn directions.
- Humanware Steller is a hand-held talking GPS which relies on maps that are pre-installed and stored on the device.

Indoor Wayfinding

- All require use of a smart phone with installed apps
- Popular options are Good Maps and Navi Lens
- Good Maps are created by a prepared scanned map of the environment saved to the cloud where the installed app can connect.
- Navi-Lens has digital tags placed within the environment where the app can announce as you pass nearby.
- WayAround tags also can be placed in the environment however you need to hold the camera of the smart phone near the tag to hear the message announced.

Voice Assistants and artificial intelligence

- Smart Speakers such as those from Amazon, Google and Apple can provide information on a variety of topics by using the wake-up term and your question.
- Smart phones such as iPhone have Siri and Android phones have Google Assistant which performs the same actions as the smart speakers.
- Each of the above will require set-up with an app and in the case of the smart speakers a Wi-Fi network.

Wearable Options

- Each of these devices will require an app to set-up on a smart phone.
- Each will require a Internet connection to make use of artificial intelligence.
- OrCam MyEye is a camera device mounted on glasses with touch pad or voice controls that can read text, identify people whose images are stored on the device and recently has introduced AI options. OrCam MyEye 3 also works in conjunction with a low vision monitor.
- EnvisionAI glasses have a camera, touch pad and voice control built into the temple of specific frames. In addition to text reading it can describe a scene, identify objects and communicate with a volunteer through AIRA and BeMyEyes or through artificial intelligence
- AIRx Vision is a bone conduction headset that is connected by cable to a smart phone and includes a camera on the right headphone. It can read text, use artificial intelligence for additional information.
- Echo Vision is a device soon to be released that includes a camera on a specialized glasses frame which includes a touch pad as well as voice controls.
- Metta Glasses include a camera on the frame, similar controls as described above, connects with BeMyEyes volunteers and makes use of artificial intelligence to read text, identify scenes and objects.

Conclusions

- Multiple options are available that can increase independence.
- All devices will have a learning curve with some having steeper curves requiring additional training and support.
- Many tasks of the devices in this session can be completed by using alternative strategies or an app on a smart phone
- Educational goals and employment goals will require using many devices throughout the day such as smart phones and computers.