AT for Individuals Who Are Deaf-Blind

“No pessimist ever discovered the secret of the stars, or sailed to an uncharted land, or opened a new doorway for the human spirit.” - Helen Keller: American author and first deaf-blind person to earn a Bachelor of Arts degree.

Estimates suggest that the total population of individuals who are deaf-blind to be somewhere between 40,000 to upwards of 70,000. There is much variety in functional ability among those identified as deaf-blind. For example, some individuals may have enough vision to be able to move about in their environment and even read large print. Others may have enough hearing to recognize familiar sounds, or understand speech. Depending on the degree of the disability, individuals who are deaf-blind may communicate through methods such as facial expressions, gestures, signs, touch, communication boards, and/or other communication technologies.

Making sense of the world, communicating, and moving about in the community are common challenges for those who are deaf-blind. Even so, every year a significant number of students who are deaf-blind graduate from high school, enter the workforce, and live independently. Technology is playing an increasingly vital role in helping people who are deaf-blind learn, communicate, and navigate every day demands. In fact, the use of technology by those who are deaf-blind increased from 32% in 2007 to 45% in 2013 for purposes beyond basic vision or hearing assistance.
If you have deaf-blindness, you may have faced unique barriers to living with your disability. Assistive technology (AT) has modernized the way you can maneuver daily tasks, allowing you to:

- live more independently;
- communicate with others faster and more effectively; and
- interact with your environment with more ease.

So, what types of technologies are now available to help you? This report provides a brief overview of types of products available for daily activities, communication, and getting around in your community.

**Braille Devices**

Braille devices can be purchased as stand-alone devices or as apps for mobile devices with tactile features. You need to be proficient in braille to use them.

One stand-alone device is the Braille Edge 40. It is a notepad that allows you to create and save notes, and read books and documents. A similar item is the Refreshabraille18. It is a handheld braille keyboard and display that is compatible with computers and mobile devices. It also supports common screen readers.

Other devices in this category include the Vtouch, which enables you to communicate with a Relay Operator, a Text Telephone (TTY), or braille TTY. Face-to-face communication can be enabled with the addition of a second keyboard. The conversation is shown on the braille display from the VTouch Braille Terminal. The unit connects to the telephone line or acoustically couples to the telephone handset.

Newer braille apps, compatible with iOS devices, such as the HumanWare Communicator offer you multilingual face-to-face conversation tools. The app facilitates a text conversation between you and a sighted person. All interaction appears both on your braille display and the iOS device screen. A Bluetooth connection can be used to pair the device with other compatible braille devices.
Computers and Devices

Modern technology increasingly allows you to easily navigate the internet. Using refreshable braille displays may help you to effectively read the content of webpages in braille. For instance, most computers (including all Apple computers and every Windows version since Windows 2000) have a program that can read out the content shown on the screen. A combination of different devices may allow you to access the internet more effectively, such as pairing a refreshable braille display and keyboard with a phone or tablet. Such pairings may allow you to more easily browse the internet, text, use instant messages, send emails, and more.

Software programs offer many additional options to help you stay in touch with family, coworkers, friends, etc. and optimize your computer use. Many software programs provide screen readers and/or magnifiers, serve as an interface between a computer and a braille display, or read content through a set of keyboard commands. Window-Eyes, for example, is a customizable screen reader that converts key PC components into speech. You can move your pointer to hear text and access calendar, emails, and files. Other software like MAGic Professional with Speech boasts features that magnify your screen content by 36 times the size, and reads out your content. The screen can be customized for colors, fonts, and brightness. Programs, such as the Guide HandsFree, have built-in speech and magnification capabilities, and allow you to dictate and send emails using simple commands.

Mobile Devices & Phones

You may also take advantage of the latest smartphones and tablet computers if you have some ability to hear and/or see. Hearing devices, such as headphones and amplifiers, can be connected to the mobile device to help you to listen to the output if you have some ability to hear. The display technologies can be adjusted in size, color, luminosity, and contrast – a great advantage if you have low vision. A number of mobile apps are designed to help you log your experiences, follow a schedule, or stay socially connected, for example.

If you have a telephone landline, an assortment of specialized phones, answering machines, and attachments, may be vital for staying in touch with loved ones. A few phones, themselves, feature amplified speakers, cordless and hands-free options, large buttons, and large screen displays with caller ID. The Fortissimo Extra Loud Speakerphone is one example of a landline phone with many useful features. As its name implies, it has an extra loud speakerphone attached with a flashing ringer, as well an illuminated talking keypad and talking Caller ID. It uses Bluetooth connectivity to pair with other headsets and neck loops. The Captel 8401 uses telephone services and WiFi to connect to the Internet and provide voice and captions during a call.
Navigating public spaces and unfamiliar terrain can be hazardous as most elements of the modern world are designed primarily for sighted individuals. AT can help to level the playing field, offering tools to make navigation easier and safer.

Tools like the Ultracane allow for safer navigation. This is an obstacle-detector and mobility cane that alerts you of the obstacles in your path as well as those at head level. The handle emits ultrasound echoes that bounce off obstacles within a pre-set distance of 6 to 13 feet from the handle, including up to 5 feet above the handle to detect objects at head level. It converts this information into 2 vibrating buttons in the handle which tell the user where an object may be and how far away the obstacle lies. Some non-cane, hand-held ultrasound devices, such as Miniguide US, offer similar functions, vibrating or chirping more rapidly as the user approaches an object, to help avoid obstacles and overhangs, locate landmarks or items such as mailboxes or trash cans, and find open paths through crowds.

To help you wake up or to remind you of something to do, AT alarm clocks have been designed for those who are unable to use traditional ones. A common approach is an alarm clock with a much louder sound than normal that also shakes your bed or pillow. How the shaking is achieved varies from one manufacturer to the next, but often involves attaching a strap to the pillow or placing a vibrator bulb in the bed.

Receiving evacuation alerts during an emergency can be challenging, as most alert systems rely on either auditory or visual cues. The Midland weather alert radio is a real-time radio that can provide some assistance by using Specific Area Message Encoding (SAME) technology, with a certified warning system and voice, amplified siren, tone, and strobe light alerts. The Ameriphone is a tactile paging system that vibrates to alert you of any notice, emergency or otherwise. It works by receiving alerts, either from a built in microphone, or from optional remote sensors, when a prolonged sound occurs (like with an alarm going off), and can include a bed shaker attachment that will vibrate under your pillow while also flashing any lamp plugged into the unit.

For More Information

References

Resolution to Support Equal Access to Communication Technologies by People with Disabilities in the 21st