Accessing Augmentative Communication for Children with Severe Physical or Multiple Disabilities
by Susan Agrawal

Again and again, I hear about children who don’t have augmentative communication devices because they are considered too physically disabled, too cognitively impaired, or because they have multiple disabilities. Every time I hear this, my heart breaks a little bit. Virtually any child, with the exception of children who are unresponsive, can communicate to some degree if provided with the right equipment and training.

It is not these children’s disabilities that are holding them back. Instead, it is closed-minded or uneducated therapists and other professionals who are not up to date on the available technology. Options are available for these children to communicate, and this article will outline many different ways of providing access to communication devices for children with multiple disabilities.

Get a Proper Evaluation

The number one thing you can do to get your child communicating is to get a proper evaluation from a speech therapist or augmentative communication team experienced with children who have severe or multiple disabilities. These sorts of specialists and teams can be difficult to find. Some common places they are found include Easter Seals centers, UCP facilities, rehabilitation hospitals, children’s hospitals, universities with programs in augmentative communication, large city school districts, and private facilities.

A proper evaluation may include the following:

- A physical assessment of your child by an OT and/or other professionals to determine methods of access
- A cognitive assessment (may be done separately)
- Receptive speech assessment (may be done separately)
- Sensory assessment for children with vision of hearing impairments
- Observation of the child in natural environments (home or school)
- Trials using computers
- Trials on multiple low-tech, medium-tech, and high-tech devices
In many cases, it will take two or more clinical sessions to complete a full evaluation. Children are also sometimes observed in non-clinic settings, such as at school or at home.

It is important to emphasize that a proper evaluation will include trialing many different types of devices and access methods, including multiple brands or styles of communication devices. If your evaluation did not include these trials, try to get a better evaluation. In some areas, there are no centers with sample devices available. If this is the case, arrange in-home trials with prospective devices before purchasing one.

### Types of Devices

There are many different types of communication devices available on the market today. These include low-tech devices, such as PECS or other picture icon cards, simple word or letter boards, and simple eye gaze boards, among many other options.

![Sample PECS board](image)

These devices are useful on the go, for beginners, and for children with stronger physical abilities.

Medium-tech devices, which are very useful for children with multiple disabilities and cognitive impairment, include things like one or two button communicators, sequencers, and other non-dynamic devices with various numbers of buttons, levels, scanning capabilities and other options. These devices allow a child to choose between a small number of set options. While they greatly limit vocabulary, they are also extremely useful on the go since they typically use recorded messages and printed icons that are easy to update.
High-tech devices are more like computers, and are often called dynamic communication devices, because the screen changes as a child makes selections. These devices, which include iPads, touch screen computers, and dedicated dynamic communication devices, allow much more extensive vocabulary and multiple options for access. While these devices are clearly more expensive, they often open the most doors for children with multiple disabilities.

**Access for Children with Severe Physical Impairments**

My daughter has severe physical impairments. She cannot move her body much at all, with only rare movements of her arms and legs. She can move her head slightly from side to side when she is in an upright position, and she can move her mouth. Like many children with severe disabilities, her inability to move—or in other cases, the inability to control random movements—greatly limits her ability to access any communication device.

Nonetheless, it is possible for children with very severe physical impairments to use very sophisticated communication devices. My daughter uses a dynamic communicator with many pages and hundreds of words and phrases. She accesses all of her words and
phrases with just a single switch positioned by her head. This is just one of many possible options for children with severe motor disabilities.

Here are some possible methods of access:

**Eye Gaze:** Eye gaze is the newest, greatest method of access for children with severe disabilities. This method allows children to control a cursor or choose buttons on a communication device simply by using their eyes.

Eye gaze does require one main skill: control of the eyes. Perfect vision is not required, but children must be able to track with their eyes and focus on a choice for a brief period in order to use an eye gaze system. While head movement is not required, children who can move their heads slightly will have a much greater access area on the communication device.

Most of the major communication devices are now available with eye gaze systems, and many existing devices can have eye gaze systems added on at a later time. The Dynavox Eyemax, the Prentke Romich Eco2 with EcoPoint, LC Technologies Eyegaze Edge, the MyTobii and other devices by Tobii, Forbes Comlink with Enable Eyes, and many other devices are now available.

It is also possible to make or purchase low-tech eye gaze boards, or simply use eye gaze between two or more physical options.

**Head Mouse:** For children with decent vision and some control of the head, a head mouse is another access option. A head mouse reader can be added on to any device that can be controlled by a regular mouse. It interprets proportional movements of the head to
move the cursor. A small tracking dot is placed on the forehead, and a camera then tracks the movement of the dot, sensing very small head movements. A head mouse can be added to a wide variety of communication systems as well as regular computers.

**Switches:** Switches are simple one-button devices that can be attached to communicators that scan, computers, toys, environmental controls and many other types of devices. There are hundreds of different sizes and styles of switches that can be accessed in various ways and by various parts of the body.

When using a switch with a communication device, children can use one switch alone or two different switches to make choices on the communication device. If one switch is used, users can scan through choices visually or by ear, hitting the switch to scan and make choices. When two switches are used, one switch is used to scan while the other is used to make a selection.

**Head Switch:** A common choice for many children is a head switch. Typically, one or two switches are mounted on the side of a child’s head. The child is able to access a communication device or computer by pressing the switch with his or her head. Common choices include the Jellybean or Specs switches from Ablenet or the Ultimate Switch from Enabling Devices, though virtually any switch that can be mounted by the head can be used.
Switches in Other Locations: Children can use virtually any part of the body to access a switch. A good OT experienced with augmentative communication can help determine a good placement. Possible locations include:

- hand (down, to the side, or grasp)
- finger (tap, squeeze, or up)
- elbow (to the side or down)
- chin (down or to the side)
- knee (up or to the side)
- foot (down, up, or to the side)
- toe (down, up, or to the side)

Specialized switches are available for many of these locations, such as dedicated chin switches, grasp switches, levers, and so forth. For a good selection of available switches, visit Ablenet or Enabling Devices.
**Twitch and Eyeblink Switches:** These very sensitive switches are useful for children who have very limited movements, and may only have control over one or more small muscles or their eye blinks. While inexpensive versions of these devices are available, only the more expensive versions, such as the SCATIR switch, are truly effective in detecting these small movements.

**Switches Built into Braces:** Talented OTs can often make braces for the hand or another body part that accommodate small switches, such as the Micro Light or Trigger switches by Ablenet. These braces typically position the switch as well as the hand or body part, allowing easy access with a very small movement of the hand, finger, or other
body part. These switches are particularly helpful for children with difficulty sustaining the energy required to use large movements, such as head movements.

**Sip/Puff Switches:** Children who are able to use their mouths easily may do well with sip and puff switches. These switches have two functions, one that is triggered by sipping with the mouth on a straw-like object, and a second function triggered by blowing or puffing. These switches can be used with communication devices that scan as well as with electric wheelchairs and various other devices.

**Pointers:** Pointers are long devices that are primarily used by the head or mouth to make choices directly on a communication device. They allow a child with some physical control of the head or mouth to make direct selections, which are much faster than using a switch to scan. Children must have decent physical control and good eyesight to use pointers. Pointers often come with various types of hats or headgear to stabilize the device in position. Laser pointers are also available, and some children may use pointers with the hand or foot that are specially adapted.

**Children with Vision and/or Hearing Impairments**

Children who have physical disabilities as well as vision and/or hearing impairments may struggle to find good ways to access communication devices. This is particularly true for children with both vision and hearing impairments.

Children with mild to moderate vision impairments may be able to adapt their devices to meet their needs. For example, many communicators allow large-size icons or words, and may even have a zoom function that will enlarge choices. Communicator screens can be adapted so the choices are positioned all on one side if one eye is better than the other, or all in the periphery or center if a given child has difficulty using the entire visual field.

If a child has a more severe vision impairment, auditory scanning can be used with many devices. This method announces the choices to the child, either through a private speaker or through the main speaker. The child hits his switch to make a choice when he hears the choice he wants. Auditory scanning is very slow, but using phrase-based choices and automatic navigation controls from page to page can make it faster. Non-dynamic communicators can also be adapted with tactile buttons or Braille to assist in choice-making for children with vision impairment.

Children with any type of hearing impairment alone tend to do fine with communication devices, since most are accessed using sight as the primary sense. If a child has both hearing and vision impairments, this is obviously a much greater challenge. Children with mild or moderate hearing impairments can use various techniques to increase the volume of the communication device, such as a speaker, headphones, or an earpiece. Children can also use noise-canceling headphones to remove background noise. Many
communicators can also be used with FM systems that allow the communicator output to be delivered through headphones or a hearing aid.

Children with combined severe physical, hearing, and vision impairments are limited by current technology at this time. It is very difficult for these children to use more high-tech devices, but they may have some success with tactile communicators. In many cases, special devices may need to be created for these children to be able to communicate. Special programs, such as the Assistive Device Center at the Perkins School for the Blind, may be able to develop appropriate individualized devices for these children.

**Communication IS Possible!**

With a proper evaluation and a communication system customized to meet a given child’s needs, it is possible for most children to communicate. Don’t give up and don’t let anyone tell you your child is too severely impaired to benefit. Technology is continually changing and increasing, and as time goes on, more and more children will be able to communicate.

*Thank you to the moms at P2P for supplying the adorable photographs of their children.*