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Simple Technology Encourages Independence In Play and Communication For Infants and Toddlers With Disabilities

By

*Catherine Burke, M.S., CCC-SLP
Clinical Instructor, Pediatrics
University of Alabama at Birmingham
Civitan International Research Center*

Children are born each year who have or who will be at risk for having developmental delays and/or developmental disabilities such as those often associated with cerebral palsy, Down Syndrome, sensory impairments, mental retardation, and autism. Many of these children will experience challenges in playing, communicating, interacting with other children, developing fine and gross motor skills, learning problem-solving skills, and participating in daily routines and activities. For some children, the impact of their delays will be short-term and they may "catch up"

with their peers with time and support. For others, the impact of their disability will be more long-term and possibly life-long.

Children with disabilities, including infants and toddlers, are often at risk for developing "learned helplessness" whereby they learn to wait on others to initiate interactions, thus becoming more passive recipients of interactions rather than active initiators of them. For some children, changes in the ways family and others in their world interact with them will be enough to promote more independence in exploring their environment. For example, a parent who typically directs most play actions may see more initiation from his or her child when they change their pattern from directing to following their child's play while providing positive and fun response and interaction. Also, a parent who typically communicates with his/her child through lots of question asking may see more spontaneous language when they begin describing and commenting and providing more opportunities for the child to communicate.

For other children, particularly those who have medical problems with more significant movement and/or learning difficulties, the risk for developing learned helplessness is greater because they often may not be able to freely explore and interact with their environment. As children get older, they often learn to "wait" to communicate or play until someone engages them. There is, however, a range of simple assistive technology materials, equipment, and strategies that can help children become more empowered initiators in play and communication regardless of their age.

Examples of assistive technology for play include the following:

- adaptations on knobs and buttons on toys to make them easier to turn and push
- bells or a rattler velcroed to a wrist band or shoes if holding them is difficult
- a special switch that a child presses with a hand or a foot to make a taperecorder play music or a battery operated car "go"
- an environmental control unit used with a special switch so a child can turn on appliances such as the popcorn popper (after his sister and dad have poured in the kernels)
- sticky material such as shelf liner that keeps bowls or toys from falling off the highchair chair to keep items accessible and reduce frustration
- a touch-window screen on a computer which lets the child interact more easily and directly with simple interactive software
- adapting books for easier access (Velcro in page corners to make them easier to turn); creating ways to keep books open through "book holders" so that children can better see the page

Young children who have delays in understanding language and using words to express themselves sometimes need other forms of communication to help "boost" development of spoken words and phrases. Augmentative communication can usually be used as a short-term, temporary method to give children an easier and more concrete way to experience language. For children with more severe physical and learning needs, augmentative communication can help address more long-term communication issues.

There are two main types of augmentative communication for young children: 1) gestures and simple sign language, which we call unaided augmentative communication because it involves the child's hands and body and doesn't require anything external to the body (facial expressions and body language is also considered to be an unaided type of communication); and 2) special communication systems involving objects and pictures (sometimes used with special voice output equipment which speaks messages recorded or programmed into them) which we call aided augmentative communication because it involves special external materials. Sometimes families

and interventionists decide to use one of these approaches, but often a combination of both unaided and aided systems is preferred.

Parents and other family members are often concerned that using an augmentative communication approach will prevent their child from developing speech, feeling that he or she will rely on using signs and/or pictures and will not try to talk. While this is a very natural and common concern, it is not the case when augmentative communication is taught and used within a spoken language framework. We typically see children become more verbal in response to spoken language paired with signs and communication boards because they understand more about what words mean and how to use them with the people in their lives. For children who may have more long-term augmentative communication needs, these approaches still promote more verbal abilities and many children learn to use a combination of spoken and augmentative communication.



In addition to "hearing" language, augmentative communication allows a child to "see" and "feel" language. We know that children, especially children with disabilities, benefit from multi-modality and multi-sensory experiences. When a child is able to get a cookie by signing "eat" or play with a special toy by touching a picture of that toy, he learns the "power" of language. He learns that language can be a tool to impact his world and to make things happen.

Examples of augmentative communication for young children include the following:

- Simple signs such as "book" to read a story, "car" to tell mama to roll it back, "eat" and "drink" for snacks and meals, "open" for a closed container, and "more" for more food, toys, or family games such as tickling or wrestling
- Object boards or boxes so that children can look to, touch, get, or give an object to a person as a request to play with or interact with that object (or one that the object represents).

- Picture boards or displays for children to look to, touch, get, or hand a picture to a person to communicate an idea (requests for objects, requests for actions, calling people, commenting such as "look" or "uh oh")
- A taperecorder which says a message such as "Do it again" or "Come here... I wanna play" when a switch is pressed; commercially available talking picture frames with recording capabilities can also be adapted and used in this manner
- Objects or pictures on a specialized voice output communication device which speaks messages when the objects/pictures are touched. Most devices for very young children are programmed through digital speech and work much like a taperecorder; words, phrases, or sentences can usually be programmed into the device by an adult or another child.
- In addition to play and communication, the field of assistive technology also addresses areas such as mobility, feeding, and learning for young children. Assistive technology includes services as well as materials and equipment. Services such as assessment, intervention, training, and follow-up are just as important as the actual materials and equipment. It is not enough just to have switches and toys for play or boards and devices for communicating... families and interventionists must learn strategies and techniques for integrating these and other types of technology into the child and family's daily routines and activities. If not, frustration may occur and valuable equipment can end up on shelves or in closets rather than being used by the children who need them.

Families often describe mixed feelings about technology. While they feel that it can have a positive impact on the ways that it helps their children interact with the environment, many family members report difficulties in trying to "fit" it into their lives. This is why it is critical that families guide which aspect(s) of technology is introduced first and to what extent, so as not to overwhelm and frustrate them.

Here are a few ideas which may be used by families and interventionists with relative ease and low cost:

- Make board books (those with thick hard pages) even easier to turn by adhering small pieces of soft adhesive Velcro or two-sided carpet tape to the page corners. These types of "page fluffers" will spread the pages apart and make it easier for some children to turn the pages (see *Total Augmentative Communication in the Classroom* by Burkhart)
- Velcro toys and pictures to an apron or vest worn by family to make them easier for the child to see, touch, and interact with; this type of vest also allows the parent to keep up with materials while freeing up their hands during special play times with their child. "Soft" Velcro can be sewn to a vest or apron or one can be made from tempo loop fabric available from local fabric stores or through Lockfast South (770-422-7122). "Hard" sticky back adhesive Velcro attaches to the toy or back of pictures and is then put on the vest during play, storytime, mealtime, etc as needed (see *Engineering the Preschool Classroom* by Goossens', Crain, & Elder available through Don Johnston or Mayer Johnson)
- For children using special switches to turn on battery-operated toys, battery adaptors can be made or purchased which interrupt the flow of the battery charge and prevent a toy from running until the switch is pressed by the child. Materials include speaker wire, solder, soldering gun, copper clad or tape available through hardware stores and Radio Shack. Instructions for making adaptors can be found in books by Linda Burkhart. Adaptors can also be purchased through companies such as AbleNet, Inc. and Toys for Very Special Children. Switches can also be purchased through these and other companies.
- Gather pictures of foods for snacks, favorite toys for play, and people (from magazines, boxes/containers, Polaroid pictures, 35mm pictures). Cover with clear contact paper available through discount stores and attach a small piece of hard adhesive Velcro to the back of each. Put pictures on a piece of indoor/outdoor carpet square (hard Velcro sticks to

it) or on a piece of poster board that has strips of soft adhesive Velcro on it. During meals, play, and other times, encourage the child to choose among a few pictures to make requests.

Companies specializing in simple adaptive equipment for very young children include, but are not limited to the following. **However, it is important that families and service providers seek consultation and/or assessment from technology specialists before purchasing equipment.** For a more comprehensive list of companies, individuals may contact their state's assistive technology program or local early intervention or technology agencies.

- AbleNet, Inc.
800-322-0956
Switches, environmental controls, battery adapters, light tech voice output devices
- AdamLab
313-467-1415
Simple digitized voice output devices
- Don Johnston, Inc.
800-999-4660
Switches, computer interfaces and software, resource books
- Linda J. Burkhart
6201 Candle Court
Eldersburg, MD 21784
Resource books and guides
- Mayer Johnson
619-550-0084
Resource books and guides, reproducible augmentative communication materials, computer software for generating line drawing picture communication symbols
- Toys for Very Special Children
800-832-8697
Battery operated toys adapted for use with switches, switches, simple, low cost voice output communication devices

Each state has an early intervention system of services for infants and toddlers and their families. Because assistive technology is a service provided through these early intervention programs, a family should be able to receive a team assessment to address technology. Each state also has an assistive technology program that families and interventionists can contact for information, including referrals for assessments and training within their area. In assessing technology needs it is important that a team of people are involved in assessment. This team should always include the child and family; depending on the needs of the child and family, it may also include a social worker, speech/language pathologist, occupational therapist, physical therapist, audiologist, vision specialist, early childhood specialist, and others.

The following resources may be helpful in locating services within your state:

- National Information Center for Children & Youth with Disabilities (NICHY)
P.O. Box 1492
Washington, DC 20013-1492
1-800-695-0285 (V/TTY)
(202) 884-8200 (V/TTY)
E-mail: nichcy@aed.org

URL: <http://www.nichcy.org>

NICHCY is an information clearing house that provides information on disabilities and disability-related issues. Children and youth with disabilities (birth to age 22) are our special focus. We offer a number of services: personal responses to questions on disability issues, referrals to other organizations and agencies, information searches of our databases and library, technical assistance to parent and professionals, as well as numerous publications, many of which are free of charge. Anyone may contact NICHCY for information. Ask for the State Resource Sheet for your state, which will include phone numbers for early intervention, assistive technology.

- Rehabilitation Engineering and Assistive Technology Society of North America (RESNA)
Sharon Scott 703-524-6686 ext 313
- Can provide phone number for each state's assistive technology program

Catherine Burke, M.S., CCC-SLP
University of Alabama at Birmingham
Civitan International Research Center
Sparks Clinics Room 313
Birmingham, AL 35294
Phone: 205-934-1122
E-mail: cburke@civmail.circ.uab.edu

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