Assistive Technology for Infants and Young Children

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Introduction

The crucial role played by assistive devices and technology in enabling individuals with disabilities to participate in age appropriate activities within home, school, and community settings has been recognized through several changes in federal policy. First, the reauthorization of P.L. 94-142, the Education Amendments of 1986 (P.L. 99-457), established a discretionary program of technology, educational media, and materials for individuals with disabilities. Second, the Technology-Related Assistance for Individuals with Disabilities Act of 1989 (P.L. 100-407) established an important federal initiative for states to undertake activities related to providing individuals with disabilities access to technological services and devices. Third, in the 1991 Amendments to the Individual's with Disabilities Act, congress incorporated definitions of assistive technology devices and services into the Act including Part B (preschool programs) and H (infant/toddler programs).

It was found that assistive technology (AT) plays a key role in enabling infants and young children to develop the skills they need to learn and grow. Early assistive technology devices and services include switches, augmentative alternative communication devices, and assistive technologies for mobility, microcomputers, and adaptation of play materials. All these technologies were successfully used to enhance and facilitate participation and skill acquisition of young children with several areas that

are regarded as important for normal functioning of young children in every day life (Aller, Solano, 2000)

Meaningful use of assistive technology is strengthened when the child's educational team and family members subscribe to a core set of shared beliefs regarding the value of assistive technology. These beliefs include (1) assistive technology are tools to enhance the child's capacity to productively engage in daily activities at home, school, and in the community; (2) assistive technology helps the child to function rather than substitute his actions; (3) the use of technology should be fun, motivating, and meaningful to the child (Judge, 2000)

So let's see what does it mean assistive technology for infants and young children?!

Assistive Technology

The Individuals with Disabilities Education Act Amendments of 1991 defines an assistive technology device as "any item, piece of equipment, or product system, whether acquired commercially, off the shelf, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of children with disabilities". For, example a flexible drinking straw is not generally viewed as a form of technology by the typical person, and instead may be viewed just as a convenience for drinking purposes. But, for a young child with a physical disability who cannot grasp and tilt a cup to drink from it, the straw provides a means for performing a functional daily living skill. In general, then assistive technologies may be considered life necessities by those individuals with disabilities who use those (Williams, 1999).

Functionally, assistive technology is intended to support and enhance an individual's development, learning, independence, productivity, and participation in daily activities. For young children, this means identifying areas in which the child is experiencing challenges (e.g., play with toys, communication with peers, participation in group activities, exploration of the environment) and the solutions that may be used to address these challenges (e.g., switch-operated toys, electronic language board, prone stander, motorized wheelchair).

A preliminary study (National Council on Disability, 1993) surveyed 136 individuals with disabilities to evaluate the costs and benefits associated with the use of different kinds of technology-related assistance. The individuals were from four age groups and the results indicate a significant impact of AT on many aspects of the respondents lives, including: the majority of infants with disabilities benefited by having fewer health problems because of AT; nearly 75% of school age children were able to remain in a regular classroom, and 45% were able to reduce their use of school-related services; 65% of working-age persons were able to reduce dependence on family members, 58% were able to reduce dependence on paid assistance, and 37% were able to increase earnings. Among elderly persons, half were able to avoid entering a nursing home. These results indicate that the issue becomes not how can we afford effective AT, but what costs is involved if it is not provided.

Categories of assistive technology.

Often assistive technology is only seen as computer applications, electric communication devices that use speech, powered wheelchair, and/or other electronic devices. However, assistive technology devices for person's normal functioning in every day life may be grounded to at least 10 different categories:

- Mobility (wheelchairs, scooters);
- Electronic communication (i.e., devices that produce artificial or real life speech fro talking with others);
- Visual (e.g., magnification devices for reading tasks);
- Assistive listening (e.g., hearing aids);
- Environmental access (e.g., infrared control unit for manipulating TV or stereo);
- Computers (e.g., game software enabling cooperative play with others);
- Leisure/recreation (e.g., hand-held electronic toys used for independent play);
- Independent living (e.g., buttoning or reaching devices for children with physical disabilities);
- Positioning (e.g., vinyl-covered rolls and bolsters used to maintain proper body alignment);
- Adaptive toys (e.g., battery-powered toys which are switch-controlled by the child) (Parette, Murdick, 1998)

Assistive technology historically has been regarded as rehabilitative or prosthetic in nature, with the ultimate aim of providing consumers with the means for continued independence and the ability to earn a livelihood. On its face, this contrasts markedly with infants and young children who are very dependent on their parents and do not earn a livelihood. However, independence and social competence do not t arise full-blown at adulthood.

Infants and young children may not be regarded as having functions in life that compel the use of assistive technology. But for example, non-disabled babies 4 to 8 months of age may bat at a mobile repeatedly. When they first bat, they hit the mobile by accident, and it moves. They notice it moves, they bat purposefully, and eventually cause the mobile to move again. They take this learning, generalize it, and cause other things to move with actions of their bodies. These are the functional capabilities expected at this age, and how higher level functional capabilities are acquired. What would happen if this child had severe motor impairments? For example, an infant's cerebral palsy may cause an inability to move her arms in a smooth and coordinated fashion. When she attempts to bat at a mobile, she misses it, or hits it on an inconsistent basis. The baby soon tires and gives up.

At birth, infants have very few functional capabilities as we typically think of them. They are completely dependent on their parents or caregivers. But they are genetically and biologically endowed with developmental capacities in six major domains: cognition, language, gross motor, fine motor, social-emotional and self help. These capacities enable the very young to experience their own selves, their environment, and the people in them, and lead to maturation, development, and learning. Acquisition of individual skills and the development of capacities in each of the domains take on added importance. This is not just because the capability itself is immediately useful to the child but because the integration of those skills across domains serves as a foundation that gives rise to higher level competence and independence (Solano, Aller, 2000)

In developmental terms, children who because of their disabilities miss acquiring foundational skills do not develop a foundation for achieving higher level functions and learning higher level concepts. Furthermore, research show that in the first decade of life before puberty there are critical times for optimal development of specific types of

learning. The implications for assistive technology for infants and young children are clear.

So last few years one vitally important component of early intervention programs was the introduction of technology to all children as soon as possible. Technology, if successfully integrated, will allow these children to better manage their lives and to interact more fully and more meaningfully with ideas and with others in their environment (Gilbert, 1999). The potential success of a "connected" education that involves not only students, but parents, future educators, instructors, caregivers, members of the community, families and local service providers is virtually limitless. Early intervention through a collaborative team approach should provide the incentive, stimulation and support necessary for these children to succeed later in life. Training should emphasize the communication and collaboration skills that will enhance an educator's and a para-educator's ability to work with the parents and siblings of disabled children without infringement of the parent/student right (Heiland, 2000)

What Kinds of Assistive Technology Can Be Used with Infants and Young Children?!

Many of the skills learned in life begin in infancy and AT can help infants and toddlers with disabilities learn many of these crucial skills. In fact, with assistive technology they can usually learn the same things that non-disabled children learn at the same age only in a different way.

First of all there are two types of AT devices most commonly used by infants and toddlers –switches and augmentative communication devices.

Switches

There are many types of switches that can be used in many different ways. A switch is defined in common English usage as anything that controls the power coming into a device. Thus, the operator of the switch controls the device. Switches come in many shapes, sizes, and modes of activation. Switches can be used with battery-operated toys to give infants opportunities to play with them. For example, a switch could be

attached directly to a stuffed pig so that every time an infant touches the toy, it wiggles and snorts. Switches can also be used to turn many things off and on. Toddlers can learn to press a switch to turn on a computer or to use “cause and effect” interactive software. Children who have severe disabilities can also use switches. For example, a switch could be placed next to an infant’s head so that every time she moved her head to the left a musical mobile hanging overhead would play (Sullivan, Lewis, 2000)

Augmentative communication devices (AC devices)

AC devices allow children who cannot speak or who cannot yet speak to communicate with the world around them. Communication is a life long learning process beginning at birth. We communicate in many different ways like listening, speaking, gesturing, reading, and writing. Communication abilities help children to learn, form social relationships, express feelings, and participate in everyday activities. Some children, due to cognitive and/or physical impairments, may have difficulty expressing themselves clearly or understanding what is being said to them. Assistive technology is an option to help young children communicate. Help for children who are at risk for difficulty in developing, sending, and receiving early communication signals and for their caregivers is available through the use of assistive technology. One example of a low or no technology option to facilitate communication is keeping an accurate log of an infant's cues and their meanings to be shared by all caregivers. Using a little more technology, the harder to recognize and read signals may be seen by videotaping babies interacting with their caregivers. The caregivers can look at the videotapes together and with professionals who work with infants and toddlers. As a team they can decide what the baby's behaviors mean and how to respond to these early signals. So you see that these devices can be as simple as pointing to a photo on a picture board or they can be more complicated —for instance, pressing message buttons on a device that activate pre-recorded messages such as, “I ’m hungry.”

Other examples of assistive technology useful to aid communication development include adapting crib mobiles so they may be controlled by a switch placed in an infant's bootie. All the child has to do is move his or her foot to turn the mobile's music and movements on or off. This ability to control the outside world, even at this early age,

helps babies to learn that their actions cause a reaction-the foundation for learning to communicate. There are also a wide variety of small devices which can "talk" for toddlers until they can say the words themselves. These devices are called augmentative communication systems and can sound like human or robotic voices. Having a way to control their world and to say what they are thinking helps all children to develop their skills to the best of their abilities. These assistive technologies may be just the tools needed to help development occur (Langone, Malone, Kinsley, 1999)

The use of Augmentative communication systems should be considered as

a. A primary means of communication when the individual is unable to produce intelligible speech
b. A supplemental method of communication for clarifying speech in unknown contexts and or unfamiliar communication patterns and/or
c. A transitional means of communication that facilitates the later development of speech.

Augmentative communication devices supplement that person's natural or unaided communication strategies such as: spoken words or word approximations; facial expressions; gestures; formal and informal sign systems; eye gazing;

Aided language systems include a wide spectrum of low and high technology AAC devices, such as

- Manual picture/symbol/alphabet/word boards
- Eye daze displays (E-Tran Boards, Vertical Eye Gaze Panel)
- Voice output devices: dedicated and/or integrated communication devices
- Print output devices
- Switch technology and scanning options

Use of augmentative communication devices in the early childhood curriculum benefits children with communication disorders in the following ways (Burkhart, 1999)

- Allows children to acquire critical linguistic skills
- Enhance opportunities for participation in typical preschool activities such as story and circle time
- Provides opportunities for social interaction with other children and adults

Mobility

One very important way in which babies learn about the world is by moving around in their environment. This gives them opportunities for seeing things from different perspectives, discovering the effect of their actions, and achieving a sense of independence. A baby who cannot move independently needs special assistance in (1) developing the ability to move and (2) being provided with assistive mobility devices. It is often difficult to predict how much independent mobility an infant will ultimately have, but it is not likely that providing assistive mobility will inhibit the development of walking.

If it appears that walking will be much delayed, very energy-consuming, or not likely to occur, there are a variety of assistive devices your child can use:

- Adapted Walkers are commercially available, and there a several which are appropriate for very young children. Some require that the baby can use his hands and some do not.
- Wheelchairs are available for very young children as well, and there are three basic types.
    - Self-propelled chairs have standard large wheels which the child pushes independently. These chairs can also be pushed by an attendant.
    - Attendant-propelled chairs are used for children who cannot use their arms well. These frequently have more seating support built into them.
    - Battery-powered chairs are operated by the child, who must control a switch of some kind.

Children as young as 15 months old may be able to operate such a chair. The child must have good arm control, adequate cognitive ability, and enough good judgment to avoid running into other people.

When selecting a mobility device, consider:

- the needs and characteristics of the child,
- the environments in which the device will be used,
- the cost of the device,
- any custom adaptations your child will need, and how much upkeep the device requires (Pierce, 1999)

Computer

Young children learn by example. They observe adults or older brothers and sisters accomplishing tasks and they imitate that behavior. When young children see parents and others reading they imitate reading. When they see parents writing, they imitate writing. When they see parents using a computer they want to climb up onto their lap and imitate pressing the keys just as their parents do. They do not realize the reasons for doing these activities but they know that the activities must be important because people who are important to them are doing them (Langone, Malone, Kinsley, 1999).

Unique features inherent in computers and software make them valuable assistive technologies for cognition and play. These unique features include:

-availability of alternative access devices such as touch screens and switches;

-fast response rate (necessary for children's short attention spans);

-the appeal of multimedia in color, sound, music and animation, self-controlled environment allowing for customizing to the user;

-the non-judgmental quality of software toward its user (it has no bias and no attitude);

-consistency of feedback toward the user.

Taken together, these features allow the child to access a customized environment appropriate to the child's developmental and skill level, where the world waits for him or her and proceeds at a pace set and controlled by the child. In this environment, contingencies can be explored without dire consequences or Herculean effort. The child can select a challenge that both piques an interest and encourages mastery and a sense of competence. In this way, the software allows children to access learning experiences previously inaccessible to them because of their disability.

Technology holds great promise and benefits for aiding a young child's development.

Using computers and special software, young children may improve in the following areas:

- •social skills including sharing and taking turns
- •communication skills
- •attention span
- •fine and gross motor skills

The use of computers in the early childhood offers tremendous opportunities for the child to participate in new learning experiences related to literacy as well as to other areas: looking at books; reading books; drawing; writing; communicating about print materials and activities; cooperative learning; manipulative play (simulated). Appropriate programs for young children may provide: excellent graphics; interesting sound effects; music; speech output; interesting responses to students' actions; endless repetitions; delightful and sometimes unexpected animations; active rather passive opportunities for turn-taking and working in pairs (Wilcox, et. al, 1999)

Computer access is available for all children through standard or adaptive input methods, which include but not limited to:

- Standard keyboards/mouse
- Commercial keyboards for children
- Low-tech keyboard modifications (flap switch, keyguards)
- Adaptive mice
- Switch access/scanning technologies (Ke:nx, Discover Switch, Adaptive firmware card, scanning software)
- Touch screen technologies
- Alternative keyboards (IntelliKeys, Power Pad, Unicom Board)
- Speech sound capability (Dorman, 2001)

Adaptive play

School readiness skills – cognition/problem solving, language, emergent literacy and innumeracy, social and self-help, gross and fine motor abilities – are typically acquired in the context of play. We know that children learn best when: they are actively engaged; they are involved in "hands on experiences"; activities are pleasurable.

Children with disabilities often have limited opportunities for play and environmental exploration. This may be directly related to the developmental, motor and/or sensory impairments attributed to the disability itself, or a secondary

effect due to isolation or segregation from peers. These children need to have their play supported in order to experience more active participation:

Active play incorporates:

1. Physical modifications or adaptations to toys: using magnets attached to the toy and metal cookie sheet to stabilize the toy and keep it within the child's reach; using battery adapters and single switches to control battery operated toys; building up or adding handles to enlarge the grasping surface of the toy.

2. Modifying the play environment: place the toys and play materials within arms reach of a child in a wheelchair; use bright, contrasting colors to stimulate visual awareness; select symbols that reflect the child's world.

3. Using alternative play strategies – alone or in combination with the above: modify the rules of the game; use fewer game pieces – (e.g., fewer cards when playing Uno); simplify directions; use multi-sensory cues;

Information About Toy's Adaptation

All children deserve the opportunity to experience the joy of play. Through simple adaptations, toys can be made accessible and open a world of exploration for all children.

For example, a child who has difficulty grasping objects may be unable to remove puzzle pieces. By replacing the small knobs on puzzles with dowel rods or empty thread spools, the child can be successful in removing the puzzle pieces. If the child is still unable to grasp the object, a piece of Velcro can be placed on the toy surface. Then a Velcro wristband can be placed on the child's wrist. Now, the child can pick-up and move the pieces without having to grasp the pieces.

Enlarge:

- Make parts of toys bigger so grasping is easier for the child. If the child is playing a game with cards, the card can be enlarged on a photocopier

machine and then mounted on a firmer surface such as cardboard. This allows the card to be easily seen and easier for the child to hold.

- To enlarge handles on toys that are difficult to grasp, screw dowel rods or empty thread spools onto the toy handle.

  Another way to enlarge handles for a child having difficulty with grasping is to wrap masking tape or soft foam on the handles of pencils, markers, utensils, etc.

  Stabilize:

- To prevent sliding of the toy while the child is playing with the toy, place suction cups onto the bottom of the toy, use a gripping material such as Velcro, Dycem, shelf liner or a rubber pad under the toy. This will help keep the toy within the child's reach during play.

  A C-clamp can also be used to secure the toy to a table while the child is playing.

  Simplify:

- Since some children are easily distracted, it is best to remove distractions and set-up toys in a manner that will keep the child interested and focused. In order to make a toy stand out from the rest of the environment during play, place dark colored toys on a light surface, such as a towel. Place light colored toys on a dark surface.
- When playing with toys with multiple pieces and colors, lay all the pieces on a solid colored surface in front of the child in order to decrease distraction.
- When playing with toys that have multiple pieces that are similar, changing the appearance of these objects may make play easier and more interesting for the child. The appearance of a toy can be changed by simply painting the pieces different colors using lead-free paints. The texture of the pieces can be altered by placing cotton, a sponge, shelf liner, carpet pieces etc. around the toy pieces.

- Remove distractions from the play area before play begins. Simply turn off the TV, remove clutter and provide good lighting to decrease distractions from play.

Appeal to the senses:

- Toys can be simply enhanced to appeal to the child's sense of sight, hearing and feel. To enhance the visibility of the toy, use colors that are bright and contrasting. Avoid using excessive bright colors or multiple patterns that may over-stimulate the child.
- Adding bells, horns and buzzers help keep the child interested in the toy. Toys that have loud buzzers or bursts of noise should be avoided since they can frighten or startle the child.
- Create a music board by attaching a bike horn, bell, drum made from a can with an attached plastic lid, xylophone from a dollar store, etc. to a wooden board or Styrofoam block.
- Toys that appeal to a child's sense of touch can be simply created at home. A tactile book can be made out of scraps of fabric, ribbon, carpet, cotton, sponges etc. This book will spark a child's interest and promote tactile stimulation. These textures can be glued to different pieces of felt. By attaching these textures to various color pieces of felt, color identification can also be addressed through play.
- A tactile mat can be created by sewing various textured materials onto an old blanket. The child can explore the various textures by crawling on the blanket, walking on it or running his or her hands over the blanket.
- Pasting various textured materials onto cardboard paper towel rods can create a spinning tactile toy. In order for the child to spin these rods, place them on a dowel rod. The dowel rod can then be attached to a wooden or Styrofoam support frame (Heiland, 2000)

Conclusion

The use of assistive technology by young children and infants has gained acceptance during the past decade. In the new world this is rapidly emerging, all

individuals must be better prepared to access, manipulate, and control information and their environments through the use of assistive technology. And it’s very important to provide assistive technology both low-tech and high-tech to infants and young children as soon as possible after their birth. Although some people think that children can use and benefit from using assistive technology only in right preschool age, it is found out that as soon you will start using assistive technology with the child with disabilities as better the child will perform in his/her every day life later.

AT Devices for Young Children

Mobility
-manual and power wheelchairs, various controls
-walkers, strollers
-scooter boards, tricycles

Standing/sitting/lying down
-standers
-supported seating

Activities of Daily Living
-adapted utensils, hook-and-loop closures on clothes
-grab bars, shower chairs, shower spray, adapted toilet seats

Environmental Controls
-to turn lights, TV, and radio on and off

Communication
-picture boards, electronic talkers

Pre-academic activities
-adapted pencils, crayons and markers; grips for writing implements
-slant boards, easels
-adapted scissors
-computers, software, and access devices

Play
-switch-adapted toys
-appropriate off-the-shelf toys
-Dycem (a thin sticky mat to keep things temporarily affixed in place) or Easyliner at most discount stores

Examples of Assistive and Alternative Hardware and Software

Most of the new, exploratory-type software on the market for young children is designed for mouse control. In such cases, for very young children, a **touch screen** can provide the best alternative access to the computer. Most 2- to 3-year-old children can successfully use a mouse following initial training with a touch screen. When using a mouse with young children, it is helpful to adjust the mouse tracking speed and the double click speed to very slow.

Several **alternative keyboards** exist that are appropriate for use with young children. **Muppet Learning Keys (Sunburst)** is a colorful keyboard attractive to young children for use with Muppets software and has keys that are arranged in a way that is easier for children to access. **IntelliKeys (IntelliTools)** is an alternative keyboard that

allows a child to respond by touching a picture, symbol, or objects on an overlay. Unlimited possibilities for computer use can be created with these devices. **The Power Pad (Dunamis**) is another alternative keyboard. It attaches to the game port of a computer and requires Power Pad compatible software for use.

Some children with physical/motor challenges, for whom standard keyboard and/or mouse operation is difficult, may need single switch adaptations in order to facilitate their participation in computer based play experiences.

There is a number of high quality **software programs** designed to improve a child's receptive language by introducing new vocabulary and language concepts. These programs also encourage children to use language while they explore and discover new things as part of the interactive nature of the software. When introducing the word dog, for example, a graphic of a dog will "run" across the monitor's screen (possibly while barking) while the computer will "say" dog using the speech synthesizer or digitized speech option. Many of the better programs follow principles of preferred instructional design for early learners by allowing young children to first explore and discover and then to practice the skills learned under new conditions. Such programs provide the children with a large and varied number of verbal, graphic, and pictorial examples of important stimuli. The more effective programs also provide the user with frequent feedback.

As one example of software producers, **Laureate Learning Systems, Inc.** has researched, designed, and marketed over 80 software titles for teaching language skills to children with developmental concerns. These programs are based on a linguistic hierarchy reflecting typical child development and include seven stages: interpreted communication; intentional communication; single words; word combinations; early syntax; syntax mastery; and complete generative grammar. For example, interpreted communication is addressed in the **Creature software (Antics, Capers, Features)** through which children learn about the concepts of cause and effect, the use of single switches for input and program control, and turn-taking in group activities. Other **Creature software (e.g., Chorus, Cartoons, and Magic) and The Early Vocabulary Development Series (First Words, First Words II, and First Verbs)** are examples of programs designed to meet the needs of children at the intentional stage (i.e., those functioning between the ages of 4 to 9 months). These programs offer a variety of instructional levels and provide children the opportunity to activate a switch that prompts the computer to identify the picture on the screen.

Software for helping children gain and practice expressive language skills is also available. Laureate Learning Systems, Inc., have built upon their receptive language programs by including additional words children can use to begin constructing phrases and rudimentary sentences, especially with the help of adults. The authors of these programs used the same base vocabulary used in the programs mentioned above in order to help children's graduated learning. For example, the **Talking Nouns** allows children to use "I," "we," "show me," "like," and other words/phrases to begin building simple sentences. This software includes a feature that corrects incorrect use of grammar and produces the correctly spoken model of the sentence the child constructed. Such programs are ideal for fostering collaborative learning and communication between peers. For individuals who are non-vocal, this series can be used as an introduction to augmentative communication. The Macintosh and Windows versions are accessible with

a TouchWindow, IntelliKeys, mouse, or a single switch. With a single switch or mouse, children can select words and pictures directly from the screen. Both linear and step scanning are available and, for those needing a single switch for access, users also have the option of having the words spoken as they are scanned. This last feature is critical for children with visual problems. As with their other programs, all of a student's records from Laureate's software can be kept in one file.

McGee and Katie's Farm are programs that motivate and stimulate children's language. While playing with adults, children can be encouraged to discuss or describe events taking place while they explore the computer-simulated environment (home and farm) with the software's characters. Another example of software that allows children to discover new things, learn cause and effect, and make choices is **Playroom**.

Don Johnston Developmental Equipment, Inc., has a variety of programs available such as Day At Play, designed to encourage early literacy skills; **Circletime Tales Delux**, a program of interactive nursery rhymes; and **Blocks in Motion**, a set of virtual play activities. Similarly, IntelliTools, the producers of one of the most sophisticated alternative access devices, the IntelliKeys, also markets Hands on Concepts, a program that encourages both pre-reading and pre-math skills. This company also markets an authoring program entitled **IntelliPics** that allow adults to produce multimedia software based on the needs of the individual child.

Sunburst also produces software for enhancing pre-academic skills. **Muppet Math**, for example, allows children to explore the **Muppet Schoolhouse** while working with shapes, practice counting, and engage in activities with patterns and numbers. The **Muppetville** software program presents children with different activities to improve their visual association skills while continuing their work with shapes, numbers and colors.

There are many qualities CD-ROM and videodiscs available that can help children with developmental concerns learn new skills while engaging in fun activities. For example, The San Diego Zoo Presents

The Animals CD-ROM allows children to explore the San Diego Zoo. While using this program, children can begin to learn the names of animals by pairing the names with the many color photographs and compressed video clips available. Problem solving skills are reinforced as children practice navigating around the park. Narration is available to provide the children with a verbal description of some animals.

CD-ROM-based storybooks are available such as two from author Mercer Mayer's stories, **Just Grandma and Me and Just Me and My Dad**. Adults can help children explore these interactive stories that provide them with examples of words, phrases, and language concepts. The producers use colorful graphics, animation, and sound to engage the children. **Living Books Series** also includes ABC's by Dr. Seuss and The Tortoise and the Hare, programs that help children explore interactive environments they may have experienced in the text versions.

Let's Start Learning allows children to follow an animated rabbit through many exploration activities designed to strengthen letter and number skills. Mr. Potato Head

Saves Veggie Valley provides children the opportunity to solve problems and strengthen basic language skills and pre-academic arithmetic skills by following a story line that takes them through the valley and to the county fair. Richard Scarry's How Things Work in Busytown and Richard Scarry's Busy Town are exploration based and allow children to engage in interactive activities related to city life (and so can be used for stimulating language). **Alphabet Blocks** helps children learn letter names, match sounds to written letters, and pronounce words.

Hi-Back Video Chair Item is a comfortable durable rockable floor chair ideal for classroom or home use. It gives vestibular input. Junior size is good for 18 months and up, built in arm-rests.

The Intimate Gardener sells Kick Backer Activity Seat, portable youth chair for on-the-floor leisure time activities; ages 1.5 and up. Chair opens to a locked position for sitting and gentle rocking action. It folds compactly for storage in an upright or flat position; durable rotomolded body is easily cleaned, indoor and outdoor use.

Assistive technology can enable children to make or communicate choices; who they want to hold them, what toy they want to play with, what food they want to eat. They learn from their choice-making and build on their learning, enhancing their ability to make decisions for themselves. This communication device, a **Tech/Four**, speaks the word on the picture when pressed, so others know what choice the child is making. Tech/Four courtesy of Mayer-Johnson

LAMAZE CLUTCH CUBE

The Lamaze Clutch Cube is a visual stimulation activity toy designed for infants and young children with upper extremity, visual, or cognitive disabilities. This soft cube features a different black-and-white geometric pattern (dots, concentric circles, etc.) or a simple design (such as a butterfly) on a colored background. Four large, soft loop handles, each with a jingle bell inside, are attached to the cube.

PEACEFUL PLANET SURPRISE INSIDE BLOCKS

Peaceful Planet Surprise Inside Blocks is a toy designed to provide audio, visual, and tactile stimulation for infants and young children with sensory or neurological disabilities. Each of the four stacking blocks offers a different nature theme and different source of stimulation: A three-dimensional chipmunk pops up from the top block. Pebble-like beads make a soft rain stick sound in another block. In a third block, a bluebird spins and is reflected in a mirror. The fourth block offers multicolored glittering seahorses and starfish moving in water.

TINY LOVE GYMNI DELUIXE 3-D ACTIVITY GYM

The Tiny Love Gymini Deluxe 3-D Activity Gym is an eye hand coordination activity for infants and young children with vision, neurological, or cognitive disabilities. The activities also provide visual stimulation, perceptual training, and memory development. The Gym consists of a washable activity blanket with a pair of removable soft arches that cross in the center and support a variety of soft geometric shapes and toys. The activity mat is engineered to remain in place on most wood, tile, and carpeted floors, no matter

how much the child moves. The mat features a "peek-a-boo" window with hidden animal faces. The soft toys include a mirror, a rattle, a musical toy that plays "Old MacDonald," a bell, and an octopus.

SNUG SEAT CAR BED

The Snug Seat Car Bed is designed for infants and young children with severe physical disabilities. This side-facing transportation device enables the child to lie flat. The child rides in the fully padded and covered plastic shell facing sideways on the car seat, zipped into the integral sleeping bag and bunting restraint system with Velcro closure. The exterior is covered in vinyl and the interior with stain-resistant rip-stop material. Automobile-style seatbelt straps secure the bed against the seat back.

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