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Embedding Augmentative Communication Within: Early Childhood Classrooms

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Young Exceptional Children 2000; 3; 18

DOI: 10.1177/109625060000300303

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Embedding Augmentative Communication Within

Early Childhood Classrooms



Seth loves to play with cars and trucks in the block corner, listen to songs on the computer, and play with the cash register in the kitchen area of the classroom. While not remarkable for most two-year olds, his ability to participate in these activities along with the other children in his preschool program is a real accomplishment for Seth.

"When Seth joined this classroom, he had no recognizable expressive language. He frequently had tantrums when he was not understood," said Kate, Seth's teacher. "We quickly introduced Seth to voice output devices and sign language during classroom activities. Seth's playmates helped us model the use of the devices and simple signs across the day. Almost immediately, Seth began using a voice output device during his favorite activity, snack. Within a couple of weeks, he began using the devices and single signs in circle time, play within centers, and outdoor play."

"We're so excited about his progress," added Penny, Seth's mother. "We know his speech is still very delayed, but he's communicating in other ways. He's also beginning to do new things with toys." Penny paused and turned to Kate, who nodded in agreement. "Who could forget his tantrums!" said Penny. "Thank goodness we haven't seen any of them for a while."

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Augmentative and alternative communication (AAC) systems are useful in assisting children with disabilities to communicate (Beukleman & Mirenda, 1992; Silverman, 1989). Many investigations involving AAC systems have focused on nonverbal communication, such as manual sign language and picture symbols. Although symbol and sign systems are useful AAC options for some children with disabilities, the lack of voice output of these systems may limit communicative exchanges between an AAC user and speaking individuals. Augmentative communication, specifically voice output devices, used in conjunction with manual sign language and picture symbols, represents a potentially advantageous alternative to nonverbal communication systems (Burkhart, 1993; Iacono & Duncum, 1995). A voice output device uses a picture or symbol-based system and provides prerecorded or programmed speech output in the form of words, phrases, or sentences. The use of multiple systems, including voice output devices, may expand a child's opportunities to communicate, providing the child increased opportunities to initiate, make choices, or terminate activities (Angelo & Goldstein, 1990; Baumgart, Johnson, & Helmstetter, 1990).

Most commercially available voice output devices are expensive, priced out of range for many parents and professionals. In addition, some parents and professionals can become caught up in the "bells and whistles" of the sophisticated high technological systems, while others

The use of multiple systems, including voice output devices, may expand a child's opportunities to communicate, providing the child increased opportunities to initiate, make choices, or terminate activities

become intimidated with the complexity of the devices. However, there are inexpensive alternatives for children with disabilities to use as a means of expressing their wants and needs or as a part of the preparatory/training phase prior to purchasing an expensive device. These inexpensive technological systems can be used to incorporate and teach the same picture communication symbols that will be used on more sophisticated systems in the future as a child's abilities expand and environments change.

Augmentative Communication Systems

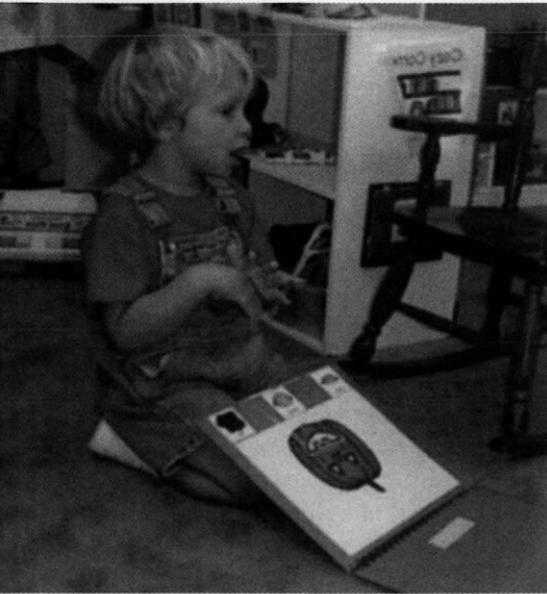
When embedded within classroom centers and routine activities, augmentative communication can be useful in facilitating active participation of children with disabilities. Augmentative communication also can promote skill acquisition and independence in all children, when used as a means to an end (e.g., Mirenda, Iacono, & Williams, 1990; Sullivan & Lewis, 1993). The goal of this article is to describe how augmentative communication can be successfully embedded in routine activities within an inclusive early childhood classroom.

Sign Language

Sign language, when paired with picture symbols and voice output devices, provides children with a variety of communication options. Sign language symbols can be incorporated throughout the classroom to increase participation and interaction by nonspeaking children. To facilitate the use of sign language by adults, post sign language symbols around the classroom at adult eye level and "cheat sheets" of sign language vocabulary in each center. Strategies for using sign language within the classroom include: (1) using signs to prepare children for the beginning and ending of activities, (2) introducing key signs for theme units, and (3) using name signs.

Many preschool teachers use a variety of strategies to prompt children that a new activity is about to begin. Corresponding sign language symbols can be used with the transition cues to prompt children to move to the activity area (e.g., circle or art). Throughout activities, sign language can be used to encourage children to interact by requesting, commenting, and indicating recurrence and termination (e.g., using the manual sign for "more" or "all done").

Sign language, when paired with picture symbols and voice output devices, provides children with a variety of communication options.



When thematic units are used within the preschool classroom, introduce a key sign for each unit (e.g., the manual sign for “bear” for the bear thematic unit). Theme signs can be introduced within a theme song during small group activities (e.g., the “bear” sign introduced within the song “The bear went over the mountain”). It is important that the signs chosen are for vocabulary children will have an opportunity to use throughout the school day. For example, a unit about autumn could include sign language symbols for pumpkins or trees. Within the classroom environment there should be ample opportunities for children to communicate about these items. Share copies of these sign language symbols with families to promote carry over at home.

Name signs can be used when making reference to individual children. Name signs are single signed alphabet letters using the first letter of a child’s name at a certain location on the body (e.g., a “C” sign on the shoulder for “Chris”). Use these signs throughout the day and send home to families a copy of the name signs of the children in the classroom.

Picture Symbols

Picture symbols provide additional visual cues to help children understand communication, as well as providing them another vehicle to communicate with others. Each center within the classroom should be labeled with a large picture symbol representing the center. For example, the manipulative center might be labeled with a symbol for toys or puzzles and the art center with a symbol for paint brushes or markers. Post corresponding sign language symbols nearby. A choice board (e.g., made from cardboard covered with Velcro (sensitive material such as tempo-loop display fabric) with smaller symbols that match the larger labels on the centers can be used to facilitate choice making and engagement in the centers. Pair object cues (e.g., a stacking ring to represent manipulatives) with the picture symbols on the choice board to facilitate choice making by children with visual impairments or by children needing a more concrete representation of a center (e.g., Rowland & Schweigert, 1990). Such choice boards can be used when children first enter the classroom, during transition times, or when children are not engaged in play. Adults present the choice board with picture symbols and/or object cues, representing two or more centers, and children choose a center using their most sophisticated form of communication.

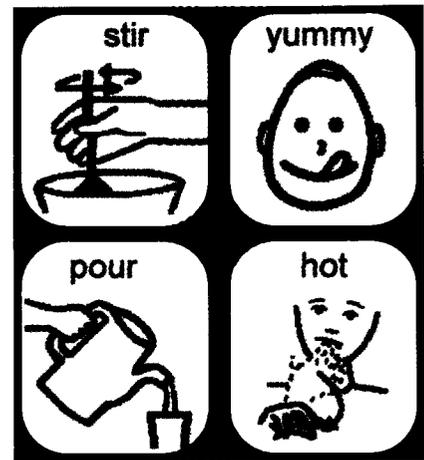
Additional choice boards can be constructed and used to offer children choices of materials available in each center. Construct these choice boards using 2” x 2” picture symbols and clear contact paper. The picture symbols on this choice board should match the picture symbols attached to objects (e.g., a milk bottle) or containers of objects (e.g., a basket of fruit) in the center. Strategies for using these choice boards are similar to those described previously. If a child is in a center but not engaged with materials, an adult presents the choice board with picture symbols and/or object cues, representing two or more materials, and the child chooses a toy or material using his or her most sophisticated form of communication.

Voice Output Communication Devices

Other means of communication, such as voice output devices, also should be available in each center to promote communicative exchanges between the child with special needs and peers and adults. Program these devices to allow children to initiate, request, and comment, indicate recurrence, and terminate play routines. Several recordable devices are available commercially that can be adapted for use as augmentative communication devices. These “homemade” augmentative communication devices can be an important tool for use with young children who are nonverbal. For example, a “Yak Bak,” sold at many discount and toy stores, can be easily adapted for use as a single message voice output device. Children can use this device to comment (e.g., “Yeah!”). Adults and peers in the center can model use of the device to describe their own play or to comment on the play of others. The “Recordable Photo Frame,” available from Radio Shack, also can be adapted for use as a single message voice output device. Adults can use this device to record environmental sounds (e.g., running water, a telephone ringing) and then gain the attention of children who are not engaged in play (e.g., by saying, “The phone is for you.”). A “Time Frame,” available from Sharper

Image, can be adapted for use as a four-“location” message voice output device (see Figure 1). Children can use this device to direct the actions of others or to comment on their own actions (e.g., turn, push, in, out). A “Sounds by Me Recordable Book,” available from Creative Communicating, can be adapted by attaching picture symbols and covering the record button. This device can be used to assist children in requesting materials available in the center. There are also commercially available voice output devices that are inexpensive and easy to use. The “Cheap Talk 4” from Enabling Devices is an example of an inexpensive, commercially available voice output device. It has four locations and can be reprogrammed multiple times within the course of the day. By adding Velcro® to each location on the device, it is easy to change picture

Figure 1



symbols for different activities. To change a message, simply press a button on the back of the device for the individual location and say the new message.

Any of these devices could be mounted in easily accessible areas of each center. Attaching “sticky back” Velcro® to the back of these devices allows them to be pulled off of shelves or furniture and moved next to a child for ease of use. Table 1 provides examples of vocabulary that might be programmed on these devices in different centers of the classroom.

Table 1

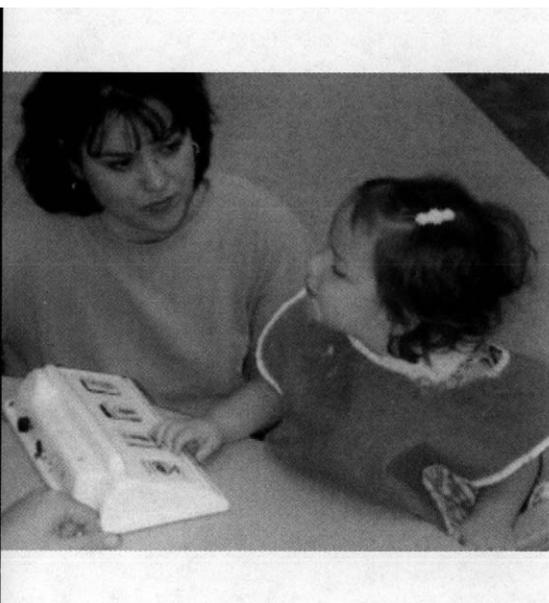
Vocabulary for Voice Output Devices Across Classroom Centers								
Voice Output Device	Manipulative	Kitchen	Blocks	Books	Dress-Up	Art	Computer	Outdoor Play
1. Yak Bak	Yeah!	Environmental sounds: Phone ringing	Yeah!	Repeated story lines such as: Are you my mother?	Look at me!	That's beautiful!	Yeah!	Yeah!
2. Time Frame or Cheap Talk 4	Turn Push In Out	Stir Yummy Pour Hot	Build it up. Knock it down. Help Finished	Help Turn the page. More All done.	Put it on. Take it off. Look at me. Help	Pull it apart. Turn it. Put it in. Take it out.	Turn it on. More Different I'm finished.	(For balls) Slam-dunk! Yeah! Uh oh, missed! I want to play ball.
3. Recordable Photo Frame	More All done.	Environmental sounds: Water running	More All done.	Turn the page.	More All done.	More All done.	More All done.	Environmental sounds: Car sound effects
4. Sounds by Me Recordable Book	Core vocabulary: I Help Open In It That	Material labels: Pot Stove Cup Plate Spoon Doll	Material labels: Big blocks Little blocks Cars People Bus Airplane	Material labels: Book Radio Tape	Core vocabulary: I Help Open In It That	Material labels: Crayon Marker Paint brush Paper PlayDoh™ Glue	Core vocabulary: I Help Open In It That	Material labels: Bubbles Rings Bean bags Bugs Cars Dolls

Embedding Augmentative Communication Systems Within Classroom Activities

With planning and practice, augmentative communication can be embedded into both routine and planned activities of the classroom. Although there are numerous classroom routines and activities within which augmentative communication can be embedded, four activities are described following: (1) planned special activities (e.g., art, sand, or water play; cooking), (2) meal time; (3) circle time; and (4) self-care routines.

Special or Planned Activities

Activities such as art, cooking, and sand or water play occur routinely within early childhood classrooms. Similar strategies can be used to embed augmentative communication within these diverse activities. A commercially available communication device (e.g., "Cheap Talk 4") or a similar "homemade" communication device (e.g., "Sounds by Me Recordable Book") can be used for interaction purposes during these activities. To do so, develop different pages of picture symbols (also called overlays) pertaining to the various special activities for use on the device. These may include overlays for a coloring activity (using markers and crayons), a painting activity, a gluing activity, a food preparation activity (e.g., making pudding), or a drink preparation activity (e.g., making lemonade). Adults model the use of the voice output device by pressing the picture symbols on the device and activating the message as they request objects, provide direction, and comment on actions. For each activity, make available sign language "cheat sheets" of pertinent vocabulary to which adults can refer. Remember to pair verbal language with these augmentative systems.



Meal Time

Snack and lunch are motivating activities for many children. During meal times, picture symbols of food items can be placed on a vest to give children menu choices. Food items can be stored in clear containers and containers labeled with picture symbols. Set up voice output devices with corresponding picture symbols. For example, the "Time Frame" could be adapted to include picture symbols and voice output for "juice," "cookies," "more," and "finished," or picture symbols could be used as overlays to represent other pragmatic functions, such as commenting (e.g., "yummy," "yucky"). A commercially available communication device or a homemade system such as a placemat with picture symbols/object cues also can be used during this activity. The vocabulary used within meal time usually remains the same. Therefore, meal time may be a good activity to add additional symbols or locations to the communication system.

Circle Time

Circle time is a routine activity found in most preschool classrooms. Choice boards with picture symbols can be used in a variety of ways during circle time to increase participation and interactions of nonspeaking children. Picture symbols can be used to: (1) facilitate choice making of activities and songs, (2) prompt participation during repeated story lines of books, and (3) improve understanding of the sequence of the daily activities.

In order to facilitate choice making by nonspeaking children, use picture symbols placed on a choice board to represent activities and songs. Place picture symbols of circle time activities (e.g., finger plays, tapes, musical instruments) on the choice board and give children choices between activities. Use individual picture symbols representing finger plays (e.g., "Itsy Bitsy Spider") for more specific choice making. Objects (e.g., audio tapes, books, toys) can be paired with these symbols to assist children with visual impairments in making choices. Label cassette tapes of individual songs with a picture symbol representing the song (e.g., a picture of a duck to represent the song "Five Little Ducks").

Picture symbols also can be used within different songs to allow children to pick different verses of the song. For example, children can choose between different animals to sing about in the song "Old MacDonald." Place a barn on a choice board and pictures of farm animals at the

bottom to represent verses. When a child selects an animal, move its picture symbol to the middle of the board as the verse is sung. These picture symbols can also be used on a voice output device (e.g., "Sounds by Me Recordable Book") programmed with the verses of songs. The voice output device provides children another means of making and communicating their choices.

If a story book is read during circle time, picture symbols can be used to prompt participation by nonspeaking children during repeated story lines of the book. Use picture symbols as a visual cue for a child to communicate the repeated story lines. A picture symbol representing a repeated story line also can be placed on a single message voice output device programmed with the story line. A variety of "homemade" single message voice output devices could be used, including "Recordable Photo Frames" and "Yak Baks."

Also incorporate sign language symbols throughout circle time activities to increase participation and interaction by nonspeaking children. Strategies for using sign language within circle time include: (1) using signs to prepare children for the beginning and ending of circle time, (2) introducing theme signs for songs, and (3) signing key words in songs.

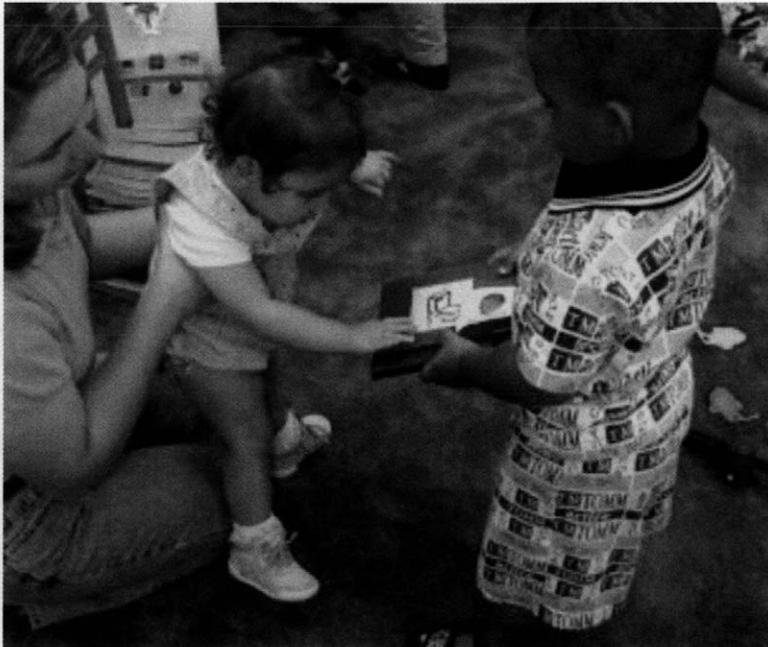
Many preschool teachers use a transition song to prompt children that circle time is about to begin. The teacher could also use a manual sign representing the circle time activity (e.g., the manual sign "music" or "sing") while providing



verbal prompting to the children to move toward the circle area (e.g., "It's time for music"). Throughout circle time, use sign language to provide children the choice of continuing (using the manual sign for "more") or ending circle time (using the manual sign for "all done").

If thematic units are used within the preschool classroom, introduce new signs for each unit. For a spring unit, the sign for flower could be introduced. This sign could then be incorporated into the theme song during circle time as well as used within the classroom to talk about flowers in the environment. Share these signs with families to promote carry over at home.

Key words in finger plays and songs within circle time also can be signed to the children. Place these signs on the back of song boards to cue adults to use the signs. When doing finger plays or singing songs, ask children if they would like to do the finger play or sing the song again using sign language (e.g., "again" or "no").



Self-Care Activities

Toileting or diaper changing and tooth brushing are excellent opportunities to include augmentative communication into self-help routines. A single message voice output device can be used to transition children to the bathroom. An adult brings the single message device, which has the picture symbol for the bathroom and the recorded message (“It’s time to go to the bathroom”), to the child and models the use of the device. A multi-message voice output device (e.g., “Sounds by Me Recordable Books”) adapted with picture symbols of the toileting or tooth brushing routine can assist chil-

children in sequencing the steps within the activity. This device also can be used to request different objects (e.g., soap or towel) and actions (e.g., turn on the water), as well as to terminate the activity (e.g., “All done”). Another multi-message voice output device can be used near the sink to encourage use of communication during hand washing. At the end of a self-care activity, a choice board with pictures of the children in the classroom can be used to promote initiation of interaction between peers. For example, when children finish washing their hands, they can choose a friend’s picture from the choice board then communicate to the friend that it is his or her turn to go to the bathroom. Use picture symbols or single message voice output devices to assist nonverbal children in communicating the message to their friends.

Strategies for Facilitating Use of Augmentative Communication Systems

Adaptations may be needed in professionals’ teaching strategies and interactional patterns to influence children’s experiences and learning. The past 20 years of research and experience in early intervention and speech-language pathology has produced many strategies for influencing the communication experiences and development of young children with disabilities (Burkhart, 1993; Goossens, Crain, & Elder, 1992). Six strategies that focus more on adults’ interactions with children are briefly described following: (1) using natural teaching situations or milieu teaching (Warren, Yoder, Gazdag, Kim, & Jones, 1993); (2) modeling use of communication devices; (3) responding immediately and consistently; (4) using augmentative communication systems across different activities and environments; (5) pairing voice output devices, symbols, and sign language with speech; and (6) using sabotage.

Interventions should be conducted in an interactive and generative manner. Use natural situations, including natural cues and consequences, to promote more natural and spontaneous use of augmentative communication systems. Conducting interventions within natural situations such as daily classroom routines and activities should reduce the need for pull-out therapy. If a child is taught to use an augmentative communication system in a contrived, adult-directed situation, in which the child must respond to direct questions or commands using the system, then he or she will learn to use the system to respond rather than initiate.

Adults should model the use of communication systems. To learn to use an augmentative communication system frequently and interactively, the child should be provided with frequent models of its use in an interactive manner. Adults can model system use by highlighting or pointing to the symbols on the device while interacting and communicating verbally with the child. In addition, adults also can use nonverbal juncture cues, or a nonverbal signal (e.g., expectant pause, facial expression, gesture, or body posture) performed by the adult preceding the modeling of the augmentative communication system. These cues help the child to spontaneously initiate interactions. Peers also can be used as role models. Since many children tend to imitate their peers more than they imitate the adults in their environment, peers should

be taught to frequently model use of the augmentative communication device in an interactive manner.

Adults should respond immediately and consistently to communication attempts. To reinforce the communication attempts of a child, an adult or peer in the child's environment should respond immediately, recognizing the child's communicative intent. Recognizing the communication attempt, however, does not require the adult or peer to comply with the request. For example, if the child chooses to go outside when it is raining, the adult or peer can respond by telling the child that it is raining and that they will go outside when it stops. Treat all communication with augmentative communication systems exactly as you would treat verbal language. The response should be consistent and children should receive the consequence that is natural or appropriate to their communication attempt. For example, the child should be provided a requested item even if the adult or peer recognizes that the item is something the child does not really want or like.

Augmentative communication systems should be used across different activities and different environments. Augmentative communication systems should be initially used during a motivating activity. For example, if the child enjoys music, first use the system during music time. Quickly expand the use of the system across other activities and daily routines within the same and different environments. Use of the device can be

Augmentative communication systems should be initially used during a motivating activity.

incorporated into snack time, outside play, or special activities within the classroom and then at home during meal times, while watching television, or when playing in the backyard.

The use of augmentative communication devices should be paired with symbol use, sign language, and speech. For example, if a child makes a nonverbal request by pointing to a particular toy, the adult should pair the request with a selection of "want toy" from the child's communication device or use the sign for "want toy" while saying "want toy." Always model the next higher form of communication for the child (e.g., if the child signs and verbalizes for "cookie," the adult should expand on the child's request by signing and verbalizing "want cookie").

Once children have begun using an augmentative system, sabotage is a helpful way to entice children to use the system frequently. Sabotage is referred to as "creative stupidity" (Musselwhite, 1992) and helps to set the stage for communication to occur. The following strategies are examples of incorporating sabotage within daily activities:

1. Give the child an incorrect item and see if he or she requests the correct one (e.g., at snack time give the child a spoon instead of a cookie).
2. Omit a step during a repeated daily routine (e.g., during

tooth brushing brush the child's teeth without putting toothpaste on the brush).

3. Incompletely perform an action (e.g., pretend it is too hard to open a bag or pour only a drop of milk into a bowl of cereal, then wait for the child to request help or more).
4. Perform an action incorrectly within a daily routine (e.g., put the spoon inside the blender instead of stirring the cake mix in the bowl).

Children enjoy correcting the teacher or other adults, thus the use of these mischievous actions might help to prompt a response from the child.

Finally, it is important to avoid becoming so caught up in the adapting and programming of materials and devices that one forgets to relax and enjoy working with the child.

Conclusion

The use of augmentative communication can increase opportunities for participation for all children. Embedding technology into classroom centers and activities will provide multiple opportunities to practice new skills and gain success. With repeated use by children and adults, augmentative communication will become a natural part of the classroom.

Summary Steps

1. Observe children within the daily routine of the classroom.
2. Identify one or two activities that are motivating and interesting to the children. The selected activities also should be ones that run smoothly for the teacher and other adults.
3. Identify core vocabulary or frequently used words within these activities.
4. Make picture symbol overlays and program devices with appropriate words or vocabulary.
5. Store devices, overlays, and adapted materials in the corresponding activity areas (e.g., overlays for snack time are stored in a sheet protector attached with Velcro® to the inside of the cabinet that contains the snack items).
6. Use picture symbols, devices, and sign language paired with verbal language during activities.
7. Once the children and adults have become familiar with using augmentative communication systems with these initial activities, begin incorporating augmentative communication into different routines, centers, and activities.

Note

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