COMMUNICATION IS A SKILL THAT MANY OF US TAKE FOR GRANTED. HOWEVER, FOR PERSONS WITH AUTISM SPECTRUM DISORDERS (ASD) AND/OR RELATED DISABILITIES, COMMUNICATION CAN BE EXTREMELY DIFFICULT AND FRUSTRATING.

The Picture Exchange Communication System™

Helping Individuals Gain Functional Communication

BY ANNE OVERCASH, M.ED., CATHERINE HORTON, M.S., CCC-SLP, AND ANDY BONDY, PH.D.

Some individuals may be unable to communicate via speech. Others may use spoken utterances that listeners cannot understand because they are unintelligible. Still, others are unable to initiate communication because they do not understand that they have the power to "go first" in a communicative exchange. The Picture Exchange Communication System (PECS™) was developed to target all of these potential areas of difficulty.

Early PECS development began in 1985 at the Delaware Autism Program by Lori Frost, M.S., CCC-SLP, and Andy Bondy, Ph.D. Frost and Bondy had implemented a variety of traditional communication intervention strategies, but many students continued to struggle.

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Speech imitation techniques required many prerequisite skills, including attention to the therapist and the ability to imitate fine motor movements necessary for speech production. Sign language was also utilized with many students. However, fine motor difficulties often impacted the ability to sign accurately, and many students developed idiosyncratic signs. Also, most people do not understand traditional sign language and these unique signs were nearly impossible for the unfamiliar listener to identify. Picture point systems also had drawbacks, including difficulty in pointing accurately or with clear discrimination and pointing whether or not a communicative partner was available. All of these traditional systems relied on the teacher/trainer to begin the interaction; none specifically focused on teaching the importance of initiating communication with another individual. Realizing these limitations, Frost and Bondy created a functional means of communication proven successful for learners with a variety of communicative challenges: the Picture Exchange Communication System.

PECS Protocol

There are six phases of the PECS protocol. The only prerequisite to PECS implementation is identification of a powerful reinforcer (an item or activity that the individual really likes).

Phase I teaches the physical exchange of a picture; no discrimination is required. Rather, the focus is on teaching the individual to initiate a communicative interaction. By the end of Phase I, upon seeing a desired item, the individual will pick up a picture, reach the picture to the hand of the communicative partner and then release the picture into the open hand. Research supports the use of two trainers in this phase to minimize prompt dependency by separating the source of reward from the source of the prompts.

Phase II teaches distance and persistence. Communication does not only take place when a communicative partner is nearby and waiting. As such, the communicative partner and communication book are slowly moved away from the individual until he or she is able to travel across the room to make a request. Additional aspects of generalization are introduced, including a variety of people, activities and locations.

Picture discrimination skills are introduced at Phase III, first through pairings of preferred and non-preferred pictures. Specific error correction strategies (such as the 4-Step Error Correction Procedure) are utilized for any mistakes. The 4-Step Error Correction Procedure, developed by Bondy and Frost (2002)

initially for use within the PECS protocol, also works well for any error within discrete trial lessons. Following mastery with pairings of preferred and non-preferred pictures, discrimination between two preferred pictures is introduced. Upon continued success, the picture array increases until the person is accurately discriminating among all of the pictures in the communication book.

Sentence structure is introduced at Phase IV; the simple request will now consist of the sentence starter "I want" + a picture of the desired item/activity placed on a Sentence Strip. The use of "sentence starters" such as "I want," "I see," "I hear," "I have," etc., will lead to eventual differentiation between comments and requests in Phase VI. The communicative partner "reads" back the sentence strip once it has been exchanged. A pause between "I want" and the name of the item/activity is utilized (referred to as a constant time delay) to encourage and facilitate speech/vocalizations. For any speech attempts or speech approximations, reward the student by providing a larger amount of the requested reinforcer. In other words, teach the student that exchanging a picture *and* speaking is even better than using picture exchange alone.

In Phase V, the PECS user is taught to expand on basic skills with the addition of attributes. Individuals often have particular preferences within their reinforcers. An individual may really like the large red

therapy ball, but dislike the yellow one. Using these preferences, a variety of descriptive vocabulary can be introduced. The teacher/trainer introduces a response to the basic question, "What do you want?" in this phase. The first four phases have focused on teaching initiation. However, responding to questions is an important skill for everyone.

In Phase VI, individuals learn to make comments on interesting stimuli in the environment. Commenting lessons should capture the student's interest by introducing sounds, sights or smells in stimulating and creative ways. At the successful completion of Phase VI, the individual will spontaneously comment on novel occurrences in the environment. At this time, the PECS user should have mastery of a combination of functional communication skills, including spontaneous requests, responsive requests, and responsive and spontaneous comments (Frost & Bondy, 2002).

Review of the Literature

Many researchers have examined the overall success of PECS implementation. Currently, there are over 85 PECS-related publications. Bondy and Frost (1994) reported the first description of PECS, as well as outcome data for 85 preschoolers with ASD attending a public school setting. Of the 66 children who began using PECS prior to age 5 and who used PECS for at least one year, 39 students transitioned to speech alone. Twenty-five other students used a combination of speech plus PECS.

Although PECS was originally developed for young children with ASD, its use has become much more widespread. PECS can be an effective tool for individuals of any age with communication difficulties. As such, PECS has been successfully implemented with individuals with varying diagnoses across the age span. Most of the

current research has involved preschoolers and elementary to high school-aged children, although six studies have included adults. The majority of studies have focused on individuals with autism, while others have involved individuals with global developmental disabilities, including cerebral palsy, blindness and deafness. Across this age range and diversity of disability issues, PECS has been highly successful with regard to the development of functional communication skills.

Regardless of age or disability, many individuals often engage in Contextually Inappropriate Behaviors (CIBs), resulting from an overall inability to communicate. Not surprisingly, when an individual is given a functional means of communication, many CIBs are greatly ameliorated. Several research articles have examined PECS implementation and found subsequent decreases in the rates of CIBs. For example, Charlop-Christy et al. (2002) studied a series of behavior targets (including tantrums, grabbing, out-of-seat behavior and disruptive behaviors) for three children with ASD in both academic and play settings. Following PECS training, they noted an overall reduction of 70 percent across behaviors and settings, with complete elimination of the four targets.

Other studies have specifically examined the effect of PECS implementation on speech development. As mentioned previously, Bondy and Frost first noted that the majority of students in their 1994 study transitioned from PECS to speech. Of the current publications regarding PECS, at least a dozen have specifically addressed the issue of speech development. When speech appears or is augmented after the introduction of PECS, it is typically after Phase IV, when the constant time delay strategy is introduced that encourages

PECS MATERIALS

Because PECS is a low-tech or light-tech communication system, there is no costly equipment to purchase to begin implementation. However, materials (such as communication books/binders) must be prepared and properly maintained. Once reinforcers have been identified for the person, symbols for those items/activities must be created. Any symbol set will do, but we have found that most communication binders contain symbols from a variety of sets. We recommend choosing a symbol set that is readily available to the team, but be flexible enough to explore other sets in Phase III if the student struggles with picture discrimination.

Following are some helpful tips for gathering and maintaining PECS materials:

- Start Phase I with pictures that are easily created. Picture discrimination skills are not required prior to the introduction of PECS, so use what you have.

- When cutting Velcro™ to affix the pictures, it is best to either coat the scissors with cooking spray or use Titanium scissors.

- Assign a communication manager to ensure that pictures are created and communication books are maintained on a regular basis.

- Never make only one picture; it is often just as efficient to print and protect several of the same picture all at once.

- Photocopy each page from the communication book and compare the photocopy with the communication book on a weekly basis. This allows for the

- replacement of missing pictures and the addition of new ones.
- Place a white board in a strategic location so that when new interests are discovered, you can easily make a note of it and make the relevant pictures later.
- Store extra pictures or pictures that have not yet been taught by category in laminated file folders, recipe boxes, small plastic drawers or thread/bead boxes, baseball card holders in binders or small pocket charts.
- Be sure the scissors and Velcro are always "at the ready" for creating extra pictures.

and supports the use of speech along with PECS. Recently, one conference presentation noted that the use of this strategy within Phase II also appeared to encourage vocalizations, though this finding needs to be replicated.

Of course, not all children with autism will develop speech after the introduction of PECS. This is also true for all communication interventions. However, a preliminary report by Schreibman (2008) gives encouraging support to the effectiveness of early introduction of PECS to very young children (mean age of 2.5 years) who have 10 or fewer spoken words upon entry into the study. This multi-year,

multi-site study randomly assigned children to receive either PECS training or Pivotal Response Training (PRT), a direct speech approach with over 20 years of research supporting its effectiveness. After six months of intense training, including parent training and support, those children in the PECS group produced just as many spoken words in as many children as those in the PRT group. Although, the full project needs to be published in a peer-review format before long-term conclusions can be drawn, the preliminary report appears very supportive of the broad effectiveness of PECS use.

For those individuals who do not develop speech, many transition to a high-tech speech-generating device (SGD). Once the individual has mastered sentence structure and begins using multiple attribute concepts, the team should consider transitioning the person to an SGD that has the capacity to store this extensive vocabulary. In a review of the literature concerning PECS and SGDs, both strategies appeared to effectively lead to functional communication.

Over the past 25 years, PECS has gained worldwide popularity. Currently, there are PECS/Pyramid offices in 9 different countries with over 22,000 participants annually receiving workshop training. PECS trainings have been conducted in

over 60 countries and the *Second Edition PECS Training Manual*© is available in 8 languages. Current research indicates that PECS is clearly an effective functional communication system for individuals with communicative difficulties. In addition, research supports the finding that PECS implementation results in increased speech production and social interactions for many individuals, as well as noted decreases in challenging behaviors.

References

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