7 Advanced Lessons within PECS

Sophie had learned to request her favorite candy, Skittles, using the Sentence Strip. Whenever we offered her a handful of Skittles, Sophie carefully inspected the choices and took only the red Skittles. If offered other colored Skittles, she pushed them aside. We realized that Sophie could select by color even though we had not yet used color within any lesson. The next time she requested a Skittle with her Sentence Strip, we said "Which one?" We provided a symbol for "red" on her PECS book and she quickly learned to form the sentence "I want…RED…Skittle." Soon, we found other objects for which color was important to Sophie and she used her new symbol whenever it helped clarify what she wanted.

Expanding Sentence Structure

There are two types of extensions to the use of the Sentence Strip introduced at the end of Chapter 6. One involves expanding on the type of request a child can produce by learning to use attributes such as color, size, shape, etc. The other involves the acquisition of new communication functions (i.e., learning to comment rather than request).

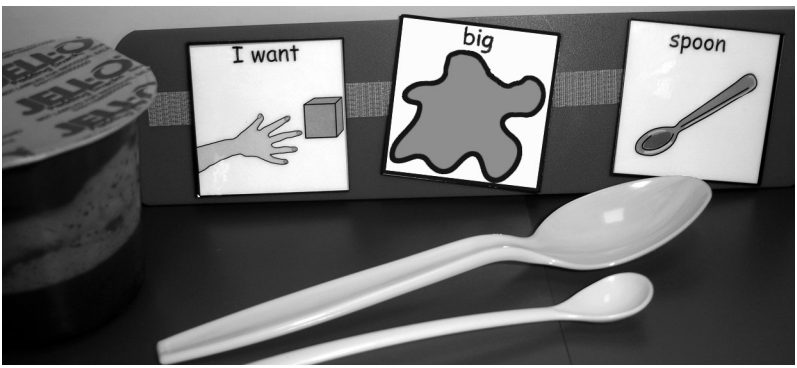
Phase Four (continued): Expanding Requests with Attributes

Once a child has learned how to use the Sentence Strip to make direct requests, we can teach him to clarify what he is requesting. As

in the example with Sophie, first we noticed that particular colors of candy were important to her, so we taught her how to communicate her preference. We also began to design lessons in which color was made to be important. For example, we placed her favorite toy within a box that had a red cover and placed that box alongside a blue-covered box. To get access to her toy, she needed to request, "I want…RED…box." We designed additional "hiding" games to teach a variety of concepts.

Gary loved chocolate chip cookies and had learned to use a Sentence Strip to request them. We noticed that if we held a large cookie in one hand and a small piece of cookie in our other hand, Gary invariably reached for the larger piece. In this situation, Gary paid attention to issues related to size—he wanted the big cookie. We then created a symbol for "big" (i.e., a blob or splotch that fills most of the symbol area) and Gary learned to specify which piece of cookie he preferred.

In this example, Gary could choose appealing items by their size. However, while it may seem easy to get a child to ask for the larger cookie, how do we teach him to request things that are small? One way is to offer choices in which only the small item fits the situation. For example, if a child could request a spoon to eat pudding out of a small plastic container, giving the child a choice between a regular-sized spoon and the kitchen ladle would increase the appeal of the smaller spoon. Of course, to be certain the child was selecting by the relative size of the spoons, we would later need to offer a choice between the regular spoon and Barbie's spoon! Another approach to this lesson would be to hide a desired item in objects that varied by size. For example, we could put a piece of candy in a small plastic egg while placing tissue paper inside a large plastic egg.



The vocabulary for other attributes, including number, positions, placement, and texture, can be introduced within the request function of PECS. (See Table 7-1.) Such lessons tend to be far more motivating to children than lessons involving understanding. Traditionally, attributes (sometimes referred to as "cognitive skills" or "conceptual vocabulary") have been taught to children with autism by placing in front of the student objects varying in the target attribute and telling the child to select by that attribute. For example, we would place a red circle and a blue circle before the child and say, "Touch red. Touch blue," or some similar

Table 7-1 | Attributes

Type of Attribute	Common Objects with Potential Motivators
Color	Candy, crayons, blocks, Legos, clothes, juice, Skittles, jelly beans, Starburst
Size a) big vs. little b) long vs. short	Whole cookie vs. crumb, spoons that fit container Pretzel rods, string, "Fruit-by-the-Foot," licorice laces, bubble wands
Shape	Crackers, cookies, cookie cutters, form board puzzles
Location	Candy by the chair vs. candy by the table (one he likes, one he dislikes). For example, "I want… cookie…chair" meaning "I want the cookie on the chair, not the one that's on the floor"
Prepositions	Toy ON the chair vs. toy UNDER the chair (one he likes, one he dislikes). In this case, "on" is providing critical information about which item is desired.
Quantity	10 toy cars rather than 1 toy car
Temperature	Cold drink vs. hot drink, room temperature glitter wand vs. frozen glitter wand
Texture	Smooth cloth vs. rough cloth for back rubs, plain vs. salted pretzel, rough- vs. smooth-edged potato chips, lumpy vs. smooth cottage-cheese, smooth vs. textured ball, smooth vs. textured Tangle Toy
Cleanliness	Clean towel vs. dirty towel
Body Parts	Mr. Potato Head; placement of Band-Aids, stickers, lotion, ink stamps, temporary tattoos, brushing
Action words	"hit," "bounce," "throw," "catch" the ball

phrase. When the child correctly responded, we would then praise him, possibly providing an additional reward. Using the request function within PECS involves items that clearly are important to the child. The reward for successful requests is receiving the item the child specified.

Designing Effective Lessons Involving Attributes

Materials needed:

Items that vary only along the dimension associated with the attribute to be taught. (See the table above for examples of attributes and potential common objects.)

Prerequisites:

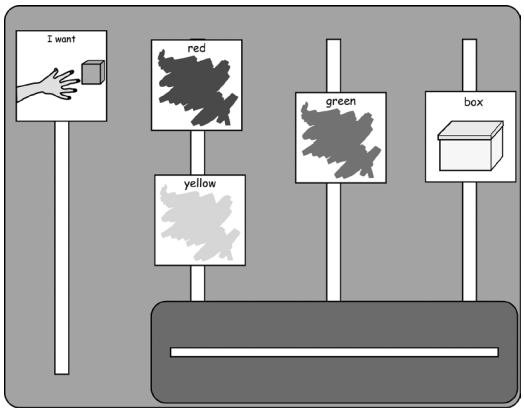
Before teaching a particular attribute within PECS, be sure that the child shows a preference associated with that attribute in terms of real items (not necessarily communicatively). For example, a child who selectively picks out red candies to eat, the blue crayon to draw with, or the white paper to draw on is demonstrating actions governed by color as an attribute dimension. In such cases, it will be very motivating to the child using PECS to request items with that specific feature.

It is very important to avoid confusing a child "knowing" or "responding to" an attribute with communicating about the attribute or understanding our attempts to communicate about that attribute. For example, we have met many teachers who were convinced that their student could not master "big" vs. "little." These teachers had done hours and hours of drills on "touch big" and "touch little" with various sized circles or squares, to no avail. However, with these same students, if I approached with a whole (big) cookie in one hand and a cookie crumb (little) in my other hand, I noticed that these students reliably took the big cookie and did not randomly respond (as long as they liked cookies!). The trick may be to separate the visual skill (or the skill associated with other senses such as touch, hearing, etc.) from the communicative skill associated with that sensory property.

If the child does not show a natural inclination to select by color, it may be possible to test his ability to visually discriminate by color without requiring communicative understanding. For example, assume that Lisa likes cookies. While she is watching, put a cookie inside an open, white-sided shoebox. You do not need to say, "Where

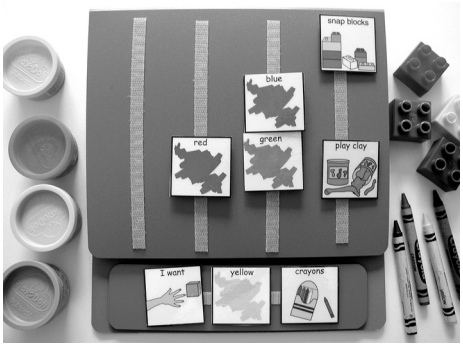
is the cookie? Find the cookie. Look inside the box" or anything else. Just show her where you are placing the cookie. If she reliably reaches inside the box to take the cookie, then, over several trials, gradually place the lid on the shoebox. If, after you show her that you placed the cookie inside the shoebox and put the lid on top of the box, she reliably opens the box to get her cookie, you are ready to move to the next step. Now, you will want to have two shoeboxes: one with a red lid and the other with a blue lid. Show Lisa the cookie inside one box and place the red lid over that box and the blue lid over the empty box. Over trials, sometimes cover the cookie with the red lid and sometimes cover it with the blue lid, and be sure to move around the position of the lids. If Katie reliably finds her cookie, then she is showing us she 'knows' color. Next, we want to teach her to communicate about color.

Note: When using an attribute such as color, try to avoid using a symbol with a perfect circle filled with that color. In such cases, the child may be confused as to whether he should pay attention to the color or the shape of the color.



People needed:

One teacher can effectively teach this lesson.



Physical arrangement:

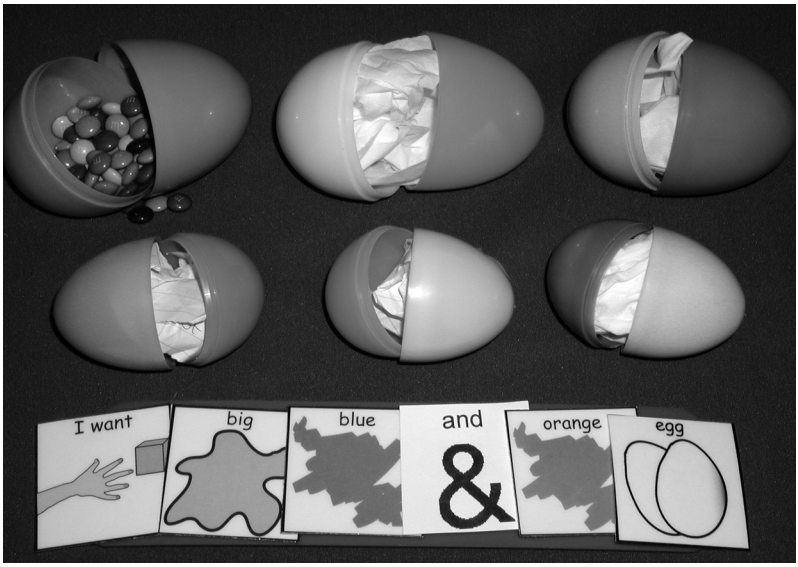
Have several pairs of items that vary only in the one attribute you are teaching. For example, if you are focusing on color, you will need pairs of items that are identical except for their color—candy, toy cars, crayons, etc. Although this

step will involve more time in preparation, it will ultimately pay off in reducing how long you will spend on teaching this lesson.

Starting the lesson:
Scenario: Marsha is Julie's mom.

Julie likes Skittles (small fruit-flavored candies with brightly colored shells). Whenever Marsha offers Julie a handful of Skittles, Julie very carefully takes the red ones. Marsha will use this preference to design the lesson. (Note: It is ***not*** *necessary for Julie to have learned to follow commands involving the word "red" ("Touch red") or for her to have mastered matching-to-sample with colors to begin this lesson. All that is necessary is for Julie to communicate her desire for Skittles using sentence structure (Phase IV in PECS) and her demonstrated preference for the red ones.)*

1. Marsha approaches Julie with a Sentence Strip containing "I want….Skittle." Marsha shows Julie two Skittles, one red and one blue. Julie reaches for the red skittle.
2. Marsha pulls back the Skittles (and she may shrug her shoulders, or say, "Which one?) and manually guides Julie to pick up a symbol for "red" on the front of the communication book. (Note that it is the physical guidance more than a spoken question that helps teach Julie what to do in this situation.) Marsha helps Julie place that symbol on the Sentence Strip between "I want" and "Skittle."
3. As Julie hands over the Sentence Strip, Marsha takes it, helps Julie touch each picture in order, while saying, "I want RED Skittle." Marsha immediately gives Julie the red Skittle. Of course, she does not try to make Julie say "red" or any other word.
4. Over the next several minutes, Marsha continues to entice Julie with Skittles and gradually reduces her manual assistance to guide Julie to use the "red" symbol within her Sentence Strip.
5. At other times, Marsha notices that Julie has her own way of building a stack of blocks. She seems to know precisely which block she wants next. Marsha holds onto a red block just as Julie is reaching for it. In this manner, Julie is encouraged to put together "I want…red…block" on her Sentence Strip.



6. Marsha continues to find situations in which Julie seems to have clear color choices and gradually introduces other color symbols into the communication system.
7. Finally, Marsha occasionally checks for correspondence with Julie. When Julie asks for a red crayon, Marsha holds up several crayons and simply says, "Go ahead, take it." If Julie takes the red crayon, then Marsha has another indication of Julie's level of skill regarding communicating about colors.

Phase Five: Teaching Answering Simple Questions

If your training in PECS has gone well until this part of the training sequence, your child should be requesting spontaneously using sentence structure and possibly attributes. In order to teach commenting, you also will need to ask your child simple questions about objects and events in the surroundings.

Since the PECS method teaches only one new skill at a time, you will need to introduce simple questions with the current communicative function used by your child, namely, requesting. At this point in the

training sequence, your child has not heard the question, "What do you want?" Therefore, learning to respond to this question is our next step.

Teaching a child who can spontaneously request with a Sentence Strip is relatively easy. We simply need to ask the question "What do you want?" prior to presenting him with something desired. Over time, we would eliminate presenting items and solely ask the question. When we begin this lesson, it also is helpful to point to the "I want" picture while asking, "What do you want?" As quickly as possible over a series of opportunities, we would gradually introduce and then increase a delay between asking our question and pointing to "I want." In time, children come to respond to the question before the teacher points to the "I want" icon. Pairing your question with pointing to one picture in this lesson will prepare your child for the use of this strategy in our next lesson.

A word of caution is appropriate at this point. We have found that once parents and professionals begin to ask, "What do you want?" they have a tendency to rely on asking this question rather than continuing to emphasize spontaneous requests. Therefore, to preserve a blend of spontaneity and responding to questioning by others, you must plan to provide a minimum number of opportunities for spontaneous requesting each day.

Phase Six: Teaching Commenting

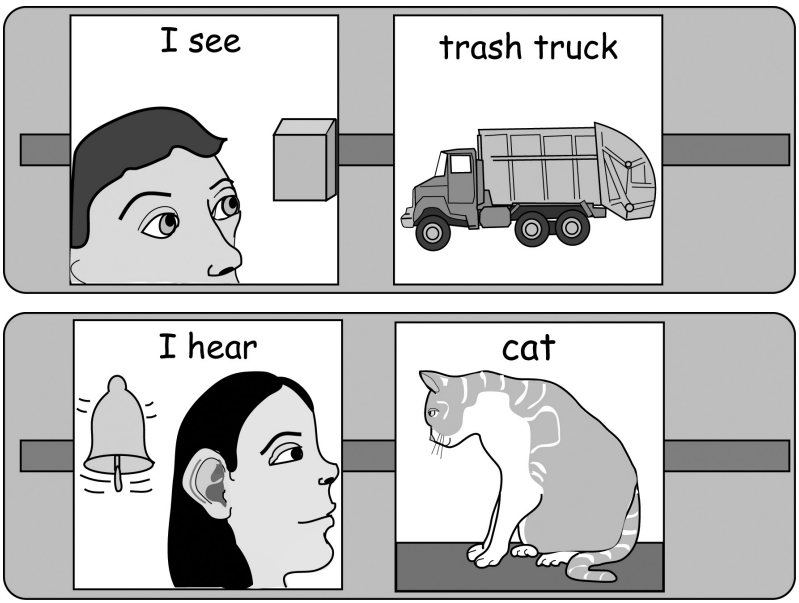
Once a child has learned to reply to "What do you want?" we are ready to teach him to respond to other simple questions, such as, "What do you see? What do you hear? What do you have?" To effectively teach these lessons, we must remember two points. First, we must remember that comments result in social consequences, not receiving the noted item. If we say, "What do you see?" and the child responds, "I see… spoon" we would respond, "Yes! It is a spoon! I see the spoon, too!" We would *not* give the child the spoon. If we did that, then the child would learn that this phrase is just another way to ask for something, such as "I'd like the spoon" or "Give me the spoon."

Second, we must understand the types of things and events that lead typically developing children to comment. Very young children do not comment about static aspects of their environment—they do not initially say, "I see the floor….I see the wall…." Instead, they first comment about things that change or are out of the ordinary. For example,

they comment about the dog walking into the room, about the milk that just spilt, about a toy that is out of place, etc. Therefore, to design effective commenting lessons, we should strive to use similar types of interesting and eye-catching (or the equivalent of ear-catching, etc.) aspects of their surroundings. The more appealing the item used in the lesson, the more likely the child will notice that item.

We begin this lesson by suddenly changing something, such as taking a toy out of a box. As we take the item out, we ask, "Oh! What do you see?" or "Look! What is it?" While we ask our question, we point to an icon representing "I see" that has been placed on the communication book (on the left side on the cover of the communication binder). The child is likely to pick up the picture pointed to because that was a skill acquired in previous lessons. (Note: It may help to have only the "I see" icon on the cover for these initial commenting trials. Later, the child will learn to choose between "I want" and "I see.") The child may next place the appropriate picture on the Sentence Strip and hand it to the teacher. As before, the teacher reads the full sentence back to the child and enthusiastically praises him!

It may be very helpful to select items that are interesting but not your child's all-time favorite object. A child who has become used to receiving something concrete when he uses PECS may be surprised



(if not shocked!) when nothing concrete is forthcoming. This reaction would be more dramatic for items that were highly desired.

As your child learns this lesson, it is important to assure opportunities to request, both spontaneously and in response to direct questions. Therefore, your child will need to distinguish between the questions, "What do you want?" and "What do you see?" and their corresponding icons.

At this point, you must make one more change in your teaching strategy to promote spontaneous commenting. Essentially, you must eliminate your questions so that only the change or interesting aspect in the environment triggers a comment from your child. You may gradually eliminate the question, by leaving off the end of the question. For example, you could say, "Look! What do…?" gradually eliminating all words within your question. Finally, if you had been using exclamatory expressions such as, "Look! Wow! Oh!" preceding your direct question, then you could eliminate the question, leaving just the exclamation. Over time, you would then eliminate your expression as well.

What Comes After Phase Six?

Children who have completed each of the phases of PECS described in this book can: 1) request wanted and needed items spontaneously and in response to questions, 2) comment about aspects of their world, again both spontaneously and in answer to questions, and 3) accomplish each function using various attributes and adjectives.

Of course, children also need to master other aspects to language development. Some of these, including social greetings, answering "yes" vs. "no," and requesting help, may involve some gestural skills, as previously noted. There is nothing incompatible about teaching these simple

gestures while also teaching a child to use PECS. One emphasis is to teach with strategies that promote spontaneity rather than rely solely on imitation. For example, a child needs to ask for help before he has a tantrum over some frustrating circumstance. The teaching strategies for initiating asking for help or a break may require the same type of two-person teaching strategy used during the initial aspect of teaching PECS. See the example at the end of Chapter 4.

The teaching strategies and sequence of skill acquisition outlined for PECS also may be beneficial when teaching language skills with other modalities. That is, the techniques and decisions described for PECS—early focus on requesting, two-person prompting, delayed prompting, shaping, fading, formal error-correction, etc.—are not limited to using picture systems to communicate. These strategies can readily be incorporated into other types of communication systems, especially using two trainers to promote initiation.

Using PECS at School and at Home

The key to the success of PECS, or any other communication system, is for it to be used as often as possible. For this system to be effective, it cannot be scheduled for use "from 10:00 AM to 10:15 and from 2:00 PM to 2:15 PM," nor simply during snack time. This system must be viewed as the child's communication system, something that is potentially helpful in all situations. Limiting its use or limiting access to the communication book to when adults are ready to use it does not promote the development of spontaneous, functional communication.

Children who speak can do so at any time and in any situation. Therefore, you must assure that your child has access to his communication book at all times, although the vocabulary used at home may differ from that used at school. We see using PECS at home (if initially taught at school) as part of the second phase of training. You also should encourage your child to use the system with everyone in the home, not just you, the parents.

At School

When can children use PECS at school? We suggest that the school team (including the teacher, assistants, and the speech-language

pathologist, and the parents at home) analyze all activities, noting the materials associated with each activity. For example, the art activity may involve paper, scissors, and crayons, while the circle time activity involves puppets associated with songs and sunny vs. cloudy pictures associated with the weather. Each of the materials is a potential source of communication.

Once your child has learned the routine associated with a particular activity, the teacher can interrupt or undermine the activity by removing a necessary item (Sulzer-Azaroff & Mayer, 1994). For example, your child may have learned to wash his hands and then use a towel to dry them. One day, if we remove the towel, we have created a situation that promotes asking for the missing towel to complete the sequence. Your child's school team should seek to find many such communicative opportunities throughout the teaching day as a way of expanding the use of PECS in the second phase of training. (More details on this strategy are reviewed in the next chapter.) In addition, it is important that school staff encourage your child to use PECS to communicate with peers, as described in the section below.

At Home

At home, we suggest a similar tactic. That is, consider the many natural routines that are available in a home environment, routines that will become part of the rest of your child's life. Examples include setting the table and routines associated with meal preparation and clean up. If your child has been taught to routinely set the table, then you can create a communicative opportunity by sabotaging the routine (with appropriate adjustments for the age of your child). For instance, you could remove all the forks from the drawer where they are usually kept. Some routines are uniquely related to the home situation and may be difficult to replicate at school.

Examples of home-based routines include:

1. Cleaning, folding, and putting away clothes (the latter can be viewed as a sorting or categorization task). For example, within these routines, a child can learn to request missing items.
2. Washing, showering, or bathing and associated objects (soap, towels, etc.) and toys (for the bathtub). For example, a child can learn to request needed items (e.g., soap) vs. desired items (e.g., the rubber ducky).
3. Unloading and sorting groceries (food or household supplies). In these situations, the child can learn to follow a schedule or to request necessary materials.
4. Cleaning and straightening the house.

Of course, we must keep age-appropriate goals in mind. For a three-year old, cleaning may involve putting away his toys, folding clothes may involve folding socks in half, setting the table may involve placing paper cups on each placemat, etc.

Each family may have their own special routines. We strongly recommend teaching and expecting children to participate in such routines. The following chart may be helpful in identifying potential vocabulary within common routines (feel free to add your own!):

Table 7-2 | Finding Vocabulary within Routines

Routine	Area of House	Vocabulary
Making cereal	Kitchen	Cereal, bowl, spoon, milk, sugar
Bath time	Bathroom	Bubble bath, washcloth, sponge, boats, bathtub stickers, toy duck
Going outside to play	House then back yard	Shoes, coat, hat, swing, ball, slide
Bedtime	Bedroom	Pillow, favorite blanket, book or specific books

Watching your child's preferences in the home is also crucial to developing increased communication. Some children enjoy watching TV or their favorite DVDs, while other children have their favorite songs. Some children have favorite toys or other household objects, while other children enjoy playing in the basement or the backyard. Your child can learn to request all of these activities spontaneously,

and, as he acquires sentence structure, to clarify his requests with attributes and adjectives.

Using PECS with Peers and Siblings

I observed Michaela, a child with autism and skilled in PECS, who had been placed in a preschool class with typically developing children. As I observed, a small group of children, including Michaela, was playing appropriately with small, plastic figures. At first it was difficult to distinguish Michaela from her peers. Then, the other children became interested in toys in another area of the room and everyone left as a group—except for Michaela. She continued to play as before. One of the children from the group came back to encourage her to join them, but Michaela continued to play as before.

After further observations, it was clear that although Michela had skills to play with toys in an appropriate manner, she did not initiate, respond to, or maintain social interactions with the other children. If an adult in the class held a toy that she wanted, she immediately went to her communication book, constructed a complete sentence, and exchanged her request for the item. However, I never observed Michaela initiating communication or social interaction with her peers. I wondered how we would change this pattern.

So far, this books has focused on teaching the child with autism to use PECS with adults. We began by teaching PECS use with adults because typically it is adults who control access to the significant desires of a child. Adults generally control access to drinks and snacks, playthings, TV, computer, or DVD player, and visits to various places outside the class and home. It is not unusual to see children with autism acquire good communication skills with PECS (or speech or any other communication modality, for that matter) but limit its use to adults. How do we teach children like Michaela to communicate with their peers and siblings?

We know we must encourage contact between our children and their peers. However, we also know that mere exposure is not sufficient to result in significant improvements in communication or play with peers. (For more information on how to promote play see *Right from the Start: Behavioral Intervention for Young Children with Autism,* by

Sandra L. Harris and Mary Jane Weiss, Woodbine House, 2007.) We often have seen a communication progression involving peers that parallels the sequence observed when children with autism learn to communicate with adults. That is, children using PECS with adults will do so with other children initially to the extent that these other children have things that interest them.

Educators at the University of Washington developed a strategy that capitalizes on the tendency of children with autism to pursue things of interest to them (Schwartz, Garfinkle, & Bauer, 1998). They were aware that adults tend to control the distribution of drinks and edible treats at snack time. In their integrated preschool, they decided to give some of the snacks to the peers of several children who knew how to use PECS. At first, some of the children with autism continued requesting snacks from their teachers, but these requests were ignored. Most children quickly noticed that a peer now held their favorite snack. While some children needed some teacher assistance, others used PECS spontaneously with peers. Now came the tricky part—the peer had to be willing to share! This was encouraged by the teachers and richly praised when accomplished. Soon, the children with autism were communicating via PECS with both adults and their peers.

These educational researchers also looked at communication in other situations in which the teachers did not specifically encourage the use of PECS. Nonetheless, the children who had learned to communicate with peers during snack time now also communicated with them in these novel situations. Furthermore, the researchers also observed increased social approach and interaction (i.e., both initiating and responding to peers) in novel situations that did not involve any formal communication.

Drawing on this work and our own experience, we have developed some guidelines that make it relatively easy to teach children using PECS to communicate with their peers and siblings. The keys are threefold:

1. Distribute desired or needed objects to peers and siblings. For example, during an art activity, let classmates or siblings be responsible for distributing the crayons, paper, and other necessary materials.
2. Peers and siblings need to understand the content of the pictures and symbols used by the child using PECS. While age may limit successful responding to PECS, we

have observed effective interactions with children as young as two years old.

3. Peers and siblings need to respond to PECS just as they would to speech. That is, they should be encouraged and supported for sharing what was requested. Of course, with young peers and siblings, it may be easier to teach them to "share" things they are not thrilled with. For example, if Mary doesn't really like popcorn, she is more likely to give some to Bill than if he asked her for her favorite cookie.

Can children using PECS use their communication skills with other children with disabilities? As long as we keep the three issues noted above in mind, we have seen successful use of PECS within groups of children with various disabilities, including autism.

(Note: In the next chapter, we will discuss strategies that help peers better communicate with children using PECS or other communication modalities.)

What Is the Relationship between PECS and Speech Development?

Although this book is written primarily for an audience interested in individuals who do not speak, many members of that audience undoubtedly hope that these individuals will learn to speak. A reasonable concern is: will using an alternative communication system, such as PECS, interfere with or inhibit the potential acquisition of speech? As was noted in Chapter 5, there is no empirical, published evidence that introducing such a system will inhibit the development of speech. In fact, information that we have gathered regarding young children who learned PECS strongly suggests that the opposite happens. That is, use of PECS for more than one year by children with autism younger than six years is strongly associated with the acquisition of speech.

In 1994, we reviewed the communication modality for a number of children with autism who received educational services in a statewide public school program (Bondy and Frost, 1994a). The program provided full-day, year-round services, had a high staff-to-child ratio,

and provided highly structured, behaviorally oriented services, including the use of PECS when appropriate. We tracked the communicative progress of nineteen children who began using PECS before the age of six years but who had used the system for less than one year at the time of the assessment. Of these students, only two had acquired independent speech, while five other children were using speech primarily while they were using PECS. The other twelve students solely relied on PECS to functionally communicate. At the same time, we reviewed a group of 66 children who also had started using PECS at the same age as the other group but who had used the system for more than one year. Of this group, 41 demonstrated independent speech, while another 20 students used speech in conjunction with PECS.

Several points of caution should be made about this information. First, this information was retrospectively collected. That is, we had not randomly assigned students to receive PECS training or not. Thus, we have not demonstrated that learning PECS causes children to acquire speech. Furthermore, when we note "independent speech," we mean that speech was the sole communication modality of a child, not that the child had necessarily acquired age-appropriate language skills. Thus, while some children who had started PECS developed age-appropriate spoken language, others acquired a much more limited ability to use language. However, such follow-up information not only suggests that the use of PECS did not inhibit the development of speech but also may have contributed to its development.

More recently, there have been several thorough reviews of research regarding PECS. One (Tien, 2008) concluded, "PECS is recommended as an evidence-based intervention for enhancing functional communication skills of individuals with ASD (autism spectrum disorder)." Another (Tincani & Devis, 2010) noted that while there was initial concern that PECS might delay or inhibit speech development, review of several peer-reviewed studies found that "there is no evidence within the reviewed studies to suggest that PECS inhibited speech; to the contrary, if any effect was observed, it was facilitative rather than inhibitory." Finally, a third review (Sulzer-Azaroff et al., 2009) stated, "Findings suggest that PECS is providing people around the globe who have no or impaired speech with a functional means of communication."

Should PECS Be Abandoned Once a Child Begins to Speak?

A related question that often occurs following the introduction of PECS is: how should you respond to a child who may begin to speak after months, or even years, of silently using PECS? On hearing those first spoken words, both parents and professionals have the tendency to put the PECS book away and insist that the child only use speech to communicate. Our experience in such situations suggests a more cautious and gradual approach for reasons illustrated in the following two examples.

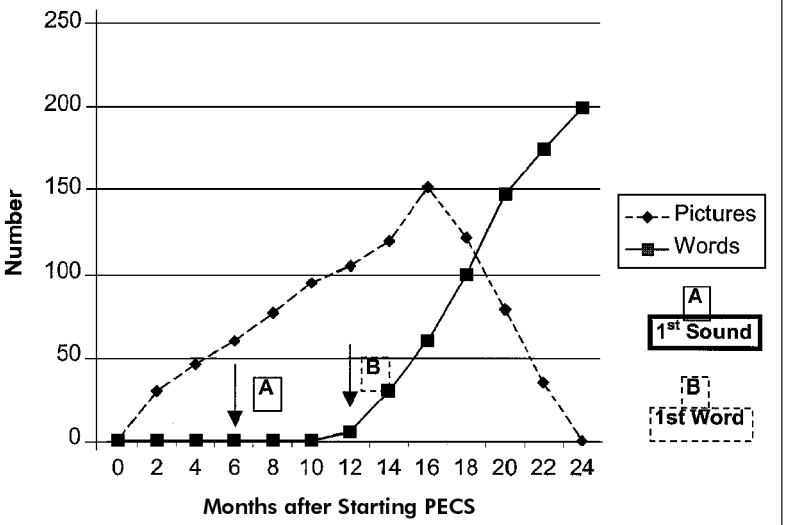
Jack was introduced to PECS when he was just about three years old. At the time, he rarely made any sounds. He quickly acquired the early skills associated with PECS. When he began to use the Sentence Strip, his teachers began to use the delayed read-back strategy. (They paused between reading back "I want" and the next picture on the Sentence Strip.) Jack then began to approximate some of the words in the sentence.

During the next several months, Jack's sentence structure became more complex and his ability to vocally imitate improved. Soon, his exchange of the Sentence Strip reliably led to his saying each word that corresponded with the pictures. Over the next few months, he occasionally would construct a sentence and then say the sentence without giving the strip to the teacher. He also began to say some words and simple phrases without using his communication book. Approximately twenty-four months after the introduction of PECS, he ceased using the system and used speech for all of his communication skills.

In Figure 1 you can follow the sequence of picture and spoken-word use by Jack after his introduction to PECS. He acquired his first PECS symbols during the first day of training. He rapidly progressed in acquiring additional pictures as he moved through the phases of training. We heard his first reliable speech-sounds after six months, while he spoke his first reliable word about twelve months after he entered the program.

Note that after Jack's first words were spoken, he did begin to speak more and more. However, during the months immediately following his first spoken word, his picture vocabulary increased by 50 percent. This growth involved new vocabulary, new syntax, and new communicative

Figure 1 | Jack's Vocabulary



functions. For example, near the end of using PECS, Jack displayed some difficulty adding "-ing" to certain verbs (e.g., "He is walk-ing"). When an icon for "-ing" was added to his communication book, and he was taught to construct sentences with this icon, his speech production began to include the appropriate verb ending. What would have happened if we had pulled his communication book away at the point when his first words appeared? At that point, he could say or imitate single words but he could construct multi-element sentences with visual symbols.

Here is another example that illustrates why it pays not to be too hasting in weaning children from PECS once they have begun to speak. For several children who were using speech while continuing to use PECS, we arranged for comparable situations with and without access to their communication books (Frost, Daly, & Bondy, 1997). While these children used some limited speech when their communication systems were not available, their speech was significantly more sophisticated and comprehensive when their PECS books were accessible. For example, one child would say "cookie" or occasionally "I want" without PECS, but with her system, she put together a complete Sentence Strip and then said, "I want two green toys" or "I want big yellow candy." If had taken this child's PECS book away or tried to force her to com-

municate only via speech, she could not have communicated as well as she could using her visual communication system.

From our perspective, if someone were to suddenly take away a child's communication binder in an attempt to promote more speech, the resultant loss of skills (even in hopes of their replacement in the future) would be unethical. During a transition from one system to another, no skills should be lost. We can measure a child's skill in terms of the total number of pictures used as well as in terms of the complexity of the sentences the child can construct. We would also want to assure that if the child spoke, at least 70 percent of his words could be understood by a stranger before a visual back-up communication system should be removed.

Finally, remember that PECS is used to teach functional communication, not to teach speech. Of course, it is delightful when children do acquire speech and such changes should receive lots of reinforcement! For those children whose vocabulary continues to grow (e.g., over 120 or so pictures), switching to an electronic system may help promote continued vocabulary growth and ease picture selection (as noted in the chapter on AAC strategies).

Troubleshooting with PECS

The table on pages 111-112 lists the most frequent mistakes that teachers and parents make when implementing PECS. The table describes the most common mistakes within each phase and suggests straightforward solutions to these problems.

How to Say "NO!" and Live to Tell about It!

As soon as a child starts making effective requests for things, we adults face a complex choice. Should we always give the child what he requests?

Early in training of PECS or any other communication system, the initial requests are very important and everyone wants to be sure to reward those requests. Thus, if a girl asks for 100 pieces of pretzel on the first day of training, we give her 100 (very small!) pieces of pretzel because we are so excited with her new skill. However, after several

Table 7-3 | Most Frequent Mistakes in Each Phase of PECS

Phase	Most Common Mistake	Potential Solution
I. Initiation	1. No powerful reinforcer 2. Verbal prompting (e.g., "What do you want?" "Give me the picture." 3. Physical prompting before reach	1. Find powerful reward 2. Practice silence 3. Wait for the reach
II. Persistence	1. One trainer 2. Only used at snack time	1. Wait for 2nd trainer 2. Create rewarding situations all day long
III. Choice making	1. Waiting to start (e.g., waiting for student to have 50 pictures before starting this phase) 2. Starting with too many pictures in the array (e.g., everything at snack time) 3. Waiting to praise until child gives the picture 4. Insisting on one type of symbol (e.g., all pictures *must* be black-and-white)	1. Start when 6 to 12 rewards are used 2. Start with one preferred and one nonpreferred 3. Give feedback on choice of symbol 4. Be flexible and try other strategies or symbols
IVa. Sentence structure	1. Waiting too long to start this phase 2. Verbally prompting 3. Insisting on speech	1. Start as soon as student has mastered array of 5 pictures 2. Not yet! Use physical prompts 3. Not now—not ever!
IVb. Attributes	1. Using only one attribute with one object 2. Insisting child complete matching-to-sample before starting this phase	1. Teach many qualifiers—color, shape, size, etc. 2. Start when the attribute is important to the child

(continued on next page)

V. Answering questions	1. Eliminating initiation (i.e., asking "What do you want?" every opportunity and thus undermining spontaneity)	1. Create, respond, and initiate opportunities
VI. Commenting	1. Boring materials 2. Predictable repetition	1. Materials should attract attention 2. Use surprise and change
VII. Transition from PECS to Speech	1. Insisting on speech imitation 2. Taking the pictures/ PECS away from child 3. Rewarding only speech	1. Reward all successful functional communication 2. Let child set the pace 3. Bigger reward for speech

days, we are not as excited to give her what she asks for every single time she asks. So, what are our choices? We've held off on this question until now because the full range of responses available depends on many lessons. Here are some choices:

1. If the girl has eaten all the pretzels, show her the empty bag (and don't say, "no." Let her get angry at the bag rather than you!) Quickly offer her some alternatives. She is likely in this situation to "see" the futility of asking for more pretzels.
2. If it is simply not time for pretzels (or whatever her requested item or activity) then take the pretzel picture and put it on the schedule indicating when it will be time to have a snack.
3. Give her a "wait" card (see Chapter 8) and during the wait time entice her with alternatives that are available. At the end of the wait, see if she'll choose another item.
4. Show her a card with the available reinforcer menu and suggest she can choose from the menu.
5. If you have no available menu, you may want to place a universal NO (™) sign on the pretzel card, or place it on a board with a red vs. green side. The items on the green side are available, while those on the red side are not.
6. Consider whether is it worthwhile to negotiate with the child. Perhaps if she did something terrific (e.g., learned a

new skill, cleaned up her room, etc.) you would be willing to make a deal with her. In this case, use her request to start the token system described in the next chapter.

7. In the end, you may simply have to say, "no" and then watch the child have a tantrum. Of course, do make sure the child does not get hurt (or hurt others). Do not give in to the child at this point or tantrums will become (or stay) the primary mode of requesting. While the child is crying or otherwise being upset, show her—possibly with other children—what other rewards are available, and see if you can entice a different request.

Of course, the choice that many will want to take—simply taking the pretzel picture away from the child—is absolutely what you should never do! These are the child's pictures, part of his or her communication system. They are *not* the teacher's pictures or the parent's. Do speaking children ever nag us with their persistent requests and questions? Of course. While we might think of taping their mouths shut, we never do. And we similarly never take away the child's ability to use PECS to communicate with us. We may not agree or reward every request, but that is a natural part of growing up in any society.

Where to Go for Help

Hopefully, the suggestions above will help prevent problems or help you design successful modifications. Of course, you may run into unanticipated problems or simply have questions about how to apply the PECS system to your child. In such cases, there are several ways you may proceed.

First, it is important that a member of your team be competent in applied behavior analysis. The strategies described here have all been developed within this field, which focuses on the science of learning and, thus, teaching. The Association for Behavior Analysis International (www.abainternationa.org) can provide guidelines regarding identifying and evaluating the skills such as a specialist should have. Another broad resource regarding behavior analysis can be found on the website sponsored by The Cambridge Center for Behavioral Studies (www.behavior.org). The Autism Special Interest Group of this organization has written a set of guidelines that can help parents and others

to identify skilled professionals in this field (*Guidelines for Consumers of Applied Behavior Analysis Services to Individuals with Autism*).

Second, a competent speech-language pathologist would also be an important member of your child's team. He or she can evaluate your child's communication abilities, both formally, with tests, and informally through observation; provide input about AAC methods; and advise parents and school staff about ways to incorporate language learning into your child's daily routine. In this area, the American Speech-Language-Hearing Association (www.ASHA.org) can supply appropriate guidelines regarding competency.

For additional guidance on the phases and associated teaching strategies of PECS, you can refer to our manual, *The Picture Exchange Communication System Training Manual*, 2nd edition (Frost and Bondy, 2002). There is also a DVD that provides a more visual overview regarding the system. These materials, as well as contact information for helpful organizations, are listed in the Resource Guide at the back of this book.

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