Assessment

Good assessment is the foundation of good instruction. Initial assessments involve evaluating the learner's current communication skills and determining motivating circumstances for communication instruction. Both of these assessment efforts may also suggest specific communicative behaviors that instruction should target.

Assessing the Learner's Communication Skills

Intervention should begin with the learner's current level of communication. We want to start where the learner can currently succeed, build on those current skills, and then push toward higher skill levels. The assessment instrument that we use is called the *Communication Matrix* (Rowland, 1996, 2004). It is structured around seven levels of communication development that represent a more detailed breakdown of the three levels discussed in Chapter 1. The assessment is conducted through observations of the child, interviews with familiar caregivers and direct elicitation of communication where needed. The Matrix yields a one-page profile showing the level of communicative behavior and the communicative intents that the child can currently convey. The Matrix is available in both professional and parent versions.

The *Communication Matrix* is certainly not the only assessment instrument that is helpful. What is important is that the assessment instrument accommodates any form of communication (pre-symbolic, symbolic, "natural" behaviors and alternative communication systems), that it provides specific information about what behaviors are used to communicate and what communicative intents are expressed, and that it provides direction in the selection of appropriate intervention goals. Some other instruments that you may find useful are *Dimensions of Communication* (Mar and Sall, 1999), the *Communication and Symbolic Behavior Scales* (Wetherby and Prizant, 1993 and 2002) and the assessments included in *Every Move Counts* (Korsten, Dunn, Foss & Francke, 1993).

Contexts for Communication Assessment

It is not helpful to bring children into an unfamiliar setting such as a clinic to assess their behavior. We want to observe the best that children can do, and children are rarely at their best in a new setting with unfamiliar people. Therefore, we assess children by observing them in their own "natural" environments – at home, at school, at day care or in familiar community environments. Parents see more of their children than anyone else and they see them in a wide variety of contexts, so it is important to have the parents' perspective on their child's skills. At the very minimum, one should interview parents regarding their child's communication skills.

Strategies for Determining Preferences

The motivation to communicate involves understanding "what's in it for me." If a learner is not interested in, attracted to or engaged by an activity and the materials or people associated with it, it is unlikely that he or she will want to communicate about it.

In the earliest stages of communication instruction it is especially crucial to identify highly motivating topics, contexts and partners for communication. In many cases the learner's preferences are obvious from classroom observations. Perhaps an interview with the parents is also needed to find out what the learner would like to communicate about. If these strategies are not sufficient, then it is advisable to put a great deal of effort into conducting a preference assessment to determine the most motivating activities and materials to use.

A preference assessment involves presenting many different choices of materials and activities and gathering objective data on the learner's responses to determine which are his or her favorites. How you present these choices and what sorts of responses you note will depend on the individual learner. Each learner is unique and more or less easy to read. Once a preference probe has been conducted, determine whether the apparent preferences suggested by the data are ones for which regular and frequent opportunities can be provided. Practice is all-important during the earliest stages of instruction. If it is not possible to provide sufficient opportunities to communicate about the learner's most preferred topic, look for a slightly less preferred topic that can be targeted regularly and frequently and ideally every day.

The following are distinctly different preference probe strategies that may be appropriate depending on the learner. These three strategies are distinguished primarily by how they accommodate the learner's physical and sensory abilities, which may influence his or her experience with and responses to the environment. This is by no means an exhaustive list of strategies for probing preferences. The bibliography includes some other references on this topic.

For the learner who has intentional "easy to read" behavior

For the learner who demonstrates purposeful behavior that is readily discernable and who has the means to act on his or her curiosities, the procedure is straightforward. Present an array of two objects on each trial, making note of which objects are presented. After the learner inspects the array, record which object he selects. If there are questions about possible position bias (e.g. the learner seems to always choose things to his left), also record the position of the item he chooses (left or right). Once he chooses an item, allow him to interact briefly with it with his communication partner. Repeat the procedure with a new set of

items, randomizing placement of items and array pairs throughout the trials. How many sessions to conduct depends on the learner and the clarity of his responses, but at a minimum conduct three sessions on different days. This allows for the possibility that initial selections may reflect curiosity, rather than preference as demonstrated over time. The data may be very simply summarized by calculating how many times a particular item or activity was chosen compared to how many times it was offered. Clearly an item selected six out of eight times over three days would be safely considered more preferred than an item chosen only two out of eight times. On the next page you can see preference probe data summarized for a child named Craig.

For the learner who is "difficult to read"

Daily Performance Data

Student __Craig__   Instructor _____

Function targeted ____preference probe____   Activity _____

Date Sept 6 Items	1	2	3	4	5	6	7	8	9	10	%
Mickey	X								/		
Clay	/		X	/		/				/	
Top					X			/			
Spintalker		X							X		
Bumble bee				/				X		X	
Vibrating pen					X			/			
Bubbles			/			/	X		X		

Date Sept 8 Items	1	2	3	4	5	6	7	8	9	10	%
Mickey	X							/	X		3/5=60%
Clay			/			/			/		1/8=12%
Top		X				X				X	4/5=80%
Spintalker		/		X	/					/	3/6=50%
Bumble bee			X				X				4/5=80%
Vibrating pen					X			X			3/4=75%
Bubbles	/			/					/		2/7=28%

Protocol
Present 2 items at a time on table. When child chooses, play with item with child. Keep play brief. Repeat with new array.

Scoring System
/ = item presented
X = positive response
Response: touch object

Session Total ___%

Protocol

Scoring System

Session Total

Note: In this example, each numbered column represents one trial in which a choice of 2 items is presented.

Next we consider learners who are "difficult to read," both in terms of their repertoire of behaviors and in terms of their likes and dislikes.

Often such children have significant orthopedic impairments which restrict their ability to independently access and act on things in the environment. Their experience and familiarity with items may be minimal. In addition, sensory impairments may restrict their ability to perceive objects or opportunities in their surroundings. Immediately this raises the issue of "informed choice." Does the learner have enough experience with, or awareness of, the choices presented to be able to make a real choice?
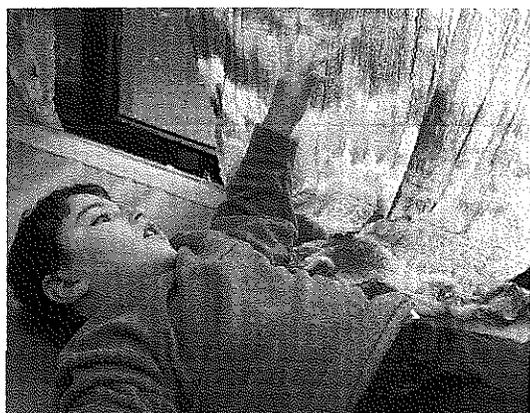
Let's look at Darla. Darla is non-ambulatory and has a vision loss. She also has uncontrolled seizures. Both her mother and her teacher feel that Darla will vocalize when she is enjoying something, but such interactions are often interrupted by seizures, making it difficult for all but very familiar people to read her consistently. We will need to engage Darla in an activity, and then pause to see if she can show us that she enjoys it and wants to continue the interaction. The activity may involve interaction with a toy or other object, or it may involve physical interaction with a partner, such as rocking back and forth or playing peek-a-boo. We will record the number of times Darla asks to "do it again" (through vocalizing) across a variety of objects and interactions. We will then compare her apparent preference for one stimulus over another. Just as in the previous example, we will not attempt such a determination based on one session. We will repeat this probe for several sessions on different days, taking care to randomize the order of presentations across items and days before attempting to draw any conclusions. Using this procedure we can determine that Darla prefers an item that she requests

Daily Performance Data

Student ___Darla___

Function targeted ___preference probe___

Date _____ Items	1	2	3	4	5	6	7	8	9	10	%
Mickey	−										0
Pom Pom	+	+	−								2
Touch Farm	−										0
Tickle ball	+	+	+	+	+	+	+	−			7
Foil Fabric	+	+	+	−							3
Parrot	+	−									1

Protocol
(1) Partner engages Darla in play with item for 30 sec.
(2) Partner pauses for 15 sec. If Darla vocalizes (+), repeat play. If no response (−), present new item.

Scoring System
+ = Vocalize
− = No response

> **Note:** In this example, the row of data next to each item shows how Darla responded to the item across one or more trials.

"more of" seven times to one that she requests "more of" only twice. Darla's data are summarized above.

For the learner with questionable intentionality associated with severe orthopedic impairment

There are also learners for whom even the presence of purposeful behavior is in question. Caregivers are often at a loss to identify what motivates such children, saying "It's so hard to tell." In these cases determining preferences is still critical, and probably even more so. We will just have to use a different and far more structured strategy to determine preferences. A highly structured preference probe will provide information about the learner's repertoire of motor behaviors as well as preferences.

There are a variety of ways to collect objective data on the responses of individuals to the presentation and withdrawal of specific items, sensory experiences and social interactions. We often videotape sessions and take frequency data on the learner's responses. The Sensory-Response Assessment from *Every Move Counts* (Korsten, Dunn, Foss & Franke, 1993) describes one approach to collecting this kind of data. The bibliography lists additional studies that describe strategies for conducting preference probes. We do not suggest one specific way to collect such data. The point is to collect objective data on whether the learner shows some reaction or response to specific stimuli in order to determine a) which material/people/interactions are highly reinforcing and b) which of the learner's behaviors appear to be voluntary and thus might serve as a means of intentional communication. However the data are collected, the information should help to answer the following questions about a learner's preferences and motor behaviors:

- Is it clear that the child notices that certain stimuli have been presented or withdrawn?

- To which stimuli does the child show the greatest reaction?

- What objects and interactions appear to cause the most positive reactions?

- What behaviors might serve as communicative behaviors for early communication instruction?

Selection of Communicative Behaviors

Once current communication skills and motivating circumstances for communication instruction have been determined, the next important consideration is what responses or behaviors the learner might use to communicate pre-symbolically. While some of this is probably apparent from the preference assessment results, it is also important to examine potential behaviors in terms of the following characteristics:

- Readability: *Is the behavior clear enough to ensure consistent interpretation by others?*

- Do-ability: *Can the child easily and repeatedly demonstrate this behavior, or is it very difficult motorically for him to do so?*

- Applicability: *How compatible is this behavior with meaningful and acceptable communication interaction?*


How much support does this youngster require to reach across midline to make a choice?

Determine what behaviors the learner currently uses to communicate or could use to communicate, such as looking at you, touching an object or continuing to rock back and forth once you have stopped rocking. The behaviors must be ones that the learner can produce easily and repeat as needed. For the learner with physical impairment, no behavior may be truly easy to produce – but one that requires *relatively* little effort is desirable. The more common pre-symbolic communication behaviors include body movements, facial expressions, vocalizations and gestures such as tapping something, pointing, tugging on people and waving. Some children with very significant orthopedic impairment will have to use other means to express themselves clearly.

Eric and his Mom

A preference probe and interviews with his mother suggested that there were a number of interactions that Eric, a child with severe and multiple impairments, seemed to enjoy. His mother engaged Eric in a variety of these preferred interactions in a quest to discover more specifically how he was most likely to express his desire to continue them or not. She discovered that Eric appeared to demonstrate certain behaviors more often when she paused certain interactions. These behaviors were evaluated in terms of their readability, "do-ability" and applicability, and many became the targets of initial interventions at home. These interventions involved shaping selected behaviors into communicative signals that Eric could use to ask for "more of" a variety of favorite interactions, such as moving his leg up to ask for more "leg fluffing."
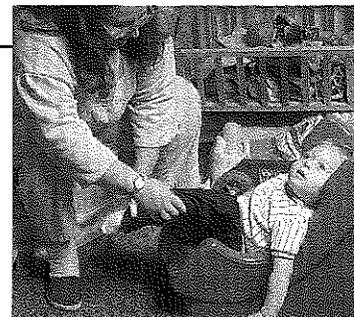
Using Switches to Communicate

Some learners may have profound orthopedic impairments that severely limit the number of communicative behaviors that are possible. For learners who have a very limited repertoire it may be necessary to train others to read and respond to their subtle and limited behaviors. This will help insure a broad receptive audience with whom the learner can practice his communication. In some cases, natural behaviors may be too limiting to afford sufficient means of communication. For these learners you may want to consider the use of switches to communicate.

Characteristics of Children who May Use Switches to Communicate

Children for whom you might reasonably consider the use of switches are those who do not have any reliable way of communicating. They are children who do not have the potential to communicate effectively through speech or conventional gestures because of their severe physical and neurological impairments. Some will also have vision and/or hearing impairments and many will appear to have severe cognitive limitations. Seizure disorders, feeding problems and respiration problems are common in these children. They may take powerful medications and sleep on and off during the day. They may appear unresponsive to attempts to interact with them, or they may seem attentive one day and inattentive the next.

These children have very little control over their physical environment for at least two reasons. The first is the obvious combination of orthopedic and neurological impairments. The second is a lack of awareness of contingencies, or causal relationships, between their own behavior and a reliable result in the physical environment. More importantly, these children have little control over their social environment – that is, over other people. They cannot tell you when they need help or attention, or when they have other basic needs. Sensing this lack of control, a child may stop trying to engage his social environment altogether as if to say: "Why bother?... I can't be heard". This child may stop trying and resign himself to a helpless state. "Learned helplessness," a term coined by Seligman (1975), is often used in reference to these learners. In a similar way caregivers, confronted with signals that are difficult to interpret, may respond less and less to the child's behaviors, thus reinforcing the child's feeling of ineffectiveness. As caregivers feel increasingly helpless to engage the child, the relationship may shift from an interactive one to a directive one, with caregivers doing things *to* the child rather than *with* the child. This is not a good prognosis for developing a sense of control or achieving the power of communication.

Challenges of Using Switches

Clearly, the population for whom switches are appropriate is a small one. These techniques are not appropriate for children who are functioning at a higher level than we have just described. Specifically, these techniques should not be used with a child who already has a viable means of communication or with a child who could be taught to use natural methods to communicate. The following limitations are inherent in these techniques:

- They are **artificial.** They rely on a switch and a motor movement, often quite subtle, rather than a natural means such as vocalizing or reaching out to someone. Whereas someone using a natural means of expression may communicate at will, reliance on a mechanical set-up makes the user's ability to communicate dependent on someone else.

- It is **time consuming** to teach someone to use these techniques. Hooking a switch up to a toy that a child may or may not like, setting the switch next to him and

walking away is easy. In contrast, choosing the correct switch, reinforcement and position to teach a child *to communicate* requires a lot more time and effort.

- These techniques require a great deal of **thought and analysis** on the teacher's part to apply successfully. Attention to how all the elements of instruction come together to create a truly meaningful learning opportunity involving switches is critical. It is not sufficient to assume that because a child activates a switch he understands what is happening. Data must be gathered and analyzed to determine the purposefulness or intent behind the child's behavior. Instructional programs must be carefully designed to insure that the learning conditions do indeed allow the child to clearly demonstrate his ability.

Making the decision to use switches

It is important to ask why you would consider using switches for a given child. This technology is typically applied to allow individuals greater access to their physical environment – to things and toys – rather than to people. That is because the non-social world of objects is fairly predictable. When you shake a bell it always rings. When you flip the wall switch, the lights always go on. The social world, on the other hand, does not always respond in a predictable or reliable fashion. When the baby cries out does mother always come? If she comes, does she always respond in the same way, or within the same time-frame? No.

If the social environment is so unpredictable, then how can we expect learners with profound disabilities to figure out how communication works and to develop the intent to communicate? Awareness of contingent relationships does not necessarily generalize from the non-social to the social world for these children. Just because they may be able to activate a mechanical dog that barks does not mean that they can figure out how to make a person respond to them. To overcome such difficulties a contingently responsive social world must be created, using technology to access it if necessary. That is a legitimate use of the technology. The purpose is clear and the benefits for the child are obvious.

Choosing a Switch

When switches are used, a great deal of effort is generally devoted to determining what switch to use based on the learner's sensory and motor skills. Preference assessment procedures specifically designed for such learners have already been described. Information from a preference probe may help to address what motor behaviors are in the learner's repertoire and whether these behaviors appear to be under the learner's control. That information is needed to determine what behavior the learner will use to activate a switch and what switch should be used for communication. In every case, the decision to use a particular switch activated by a particular motor behavior should be a joint decision of parents, educators, speech-language pathologists, physical therapists and occupational therapists.


Switches are not forever...

One principle to keep in mind as you use switches for communication instruction is: Just because a child starts out using switches to communicate does not mean that the child will use switches forever, or for every aspect of communication. Sometimes success in communicating with switches is followed by the ability to use some natural behaviors to communicate, such as vocalizions or simple gestures. This may be due to the child's maturation, the child's increased sense of control or the fact that you have become more aware of the child's natural behaviors and are better able to interpret them.

Assessment of Symbolic Readiness

As efforts to teach a learner to communicate pre-symbolically succeed, it is appropriate to wonder whether he or she is ready to begin to use a symbolic means to communicate. Once a learner starts to use pre-symbolic communication skills spontaneously and with clear communicative intent across a variety of settings, we will typically consider this possibility. Some learners will already be showing some tentative use of specific symbol systems. Perhaps a few spoken words are appearing, or a few manual signs. If these symbols are being used meaningfully, then we would consider moving on to that symbolic system. For users who may not be ready to use abstract symbol systems we may consider teaching them to use tangible symbols (two- and three-dimensional symbols) as a more concrete means of symbolic communication. However, we do not assume that a specific type of symbol is appropriate based solely on a learner's diagnosis. In other words, we do not automatically assume that hand-in-hand signing is appropriate for a child who is deafblind or that picture symbols are appropriate for a child with autism. Instead, we will conduct an assessment to find out what type of symbol appears to be most meaningful to the learner at this time We use the *Tangible Symbol Systems Pre-Test* (Rowland and Schweigert, 2000a) to assess symbolic readiness. This assessment provides a structured way to probe an individual's understanding of various types of two-and three-dimensional symbols.
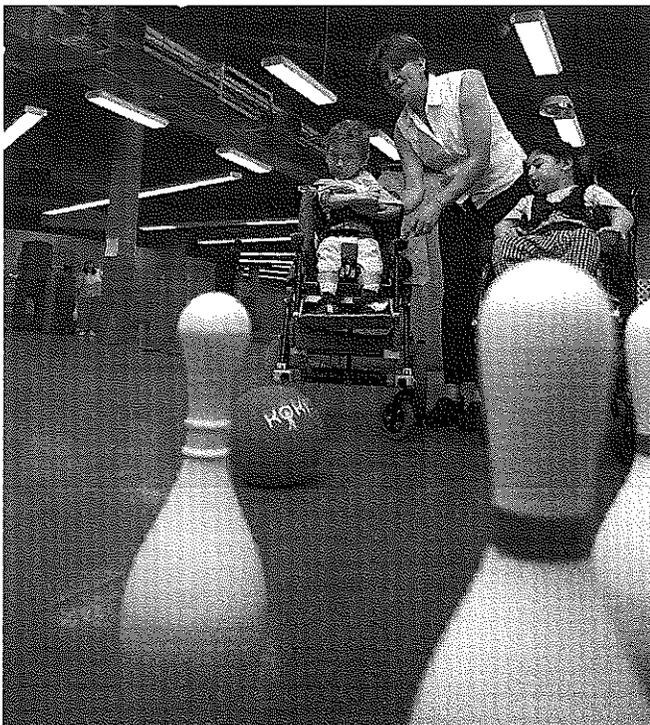
Evaluating the Learning Environment

Now let's step back and look at the entire learning activity. Initial learning of new communication skills by children with significant disabilities often requires sustained and highly structured instructional efforts. Unfortunately, learning new skills in highly structured contexts does not guarantee that a child will learn to use those skills independently. To encourage a learner to communicate independently, teachers must be able to identify what conditions *naturally* elicit targeted behaviors: then they may need to accentuate those conditions in order to promote learning and independence for individual learners. An environmental inventory may help teachers to become aware of the natural cues for desired communicative behaviors that already exist, and to arrange the social and physical environments to provide more of those cues in a manner that is evident to the learner. *Design to Learn* (Rowland and Schweigert, 2003) is an environmental inventory that reveals to what extent a specific activity is encouraging learning and independence for a particular child and exactly how it is or isn't doing so. The *Communication Supports Checklist for Programs Serving Individuals with Severe Disabilities* (McCarthy, et.al., 1998) serves a different but related purpose. This checklist is used to evaluate communication supports across an entire educational service program.

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