Understanding and nurturing the communicative competence in the emerging symbolic learner with significant disabilities

Austin Texas
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Assessment of Early Communication

www.communicationmatrix.org

Dr. Charity Rowland
Four Elements of Communication

- Sender
- Means of Expression
- Elements of Communication
- Receiver
- Topic
Gestures

• Effective
• They are Generic. A single gesture may be used to refer to many things
• Can be used to communicate about only that which is happening now and here
Communicative Intent

- Is shaped by caregivers responding to pre-intentional behavior as if it were intentionally communicative
Intentional Communication

• Implies
  – Intentional behavior
  – Purposefully directed toward another person with intended meaning

• Requires dual orientation to both the communication partner and the topic
Communicative Intent

• May rely on social negotiation of meaning between sender and receiver because the intended meaning may not be clear

• Creates a degree of interdependency between sender and receiver

• Not uncommon to misinterpret intent in AAC use (e.g. points to a picture is he making a request or commenting)
Characteristics of Intentional Communication

- Persistence
- Repetition
- Alternating Gaze (body orientation, leaning toward)
- Changing the signal used
- Awaiting a response
- Terminating the signal when responded to
- Indicating satisfaction or dissatisfaction to response (Wetherby & Prizant 1989)
Symbols

- Effective
- Specific. Each can be used to refer to only one particular thing.
- Can be used to refer to things that are present or absent, now or in the past or future
Concrete Symbols

Symbols physically resemble what they represent in a way that is obvious to the child—they look like, feel like, move like or sound like what they represent. Concrete symbols include picture symbols, objects used as symbols (such as a shoelace to represent “shoe”), certain “iconic” gestures (such as patting a chair to say “sit down”) and sounds (such as making a buzzing sound to refer to a bee).
VI.

Abstract

Symbols

•The child uses abstract symbols such as speech, manual signs, or Brailed or printed words. These symbols do not look, feel, or sound like what they represent. They are used one at a time.
VII. Language

- The child combines symbols (any sort of symbols) into ordered two- or three-symbol combinations (“want juice”, “me want juice”), according to grammatical rules. The child understands that the meaning of word combinations may differ depending upon how the symbols are arranged.
### Development of Communicative Intent

<table>
<thead>
<tr>
<th>Level of communication</th>
<th>Pragmatic Features</th>
</tr>
</thead>
</table>
| **Level I**
Pre-intentional (Reactive) Behavior          | STATES expressed by behaviors (as interpreted by caregivers)                         |
|                                                | Discomfort                                                                          |
|                                                | Comfort                                                                             |
|                                                | Interest/Excitement                                                                 |
| **Level II**
Intentional (Pro-active) Behavior           | FUNCTIONS that behaviors serve (as interpreted by caregivers)                       |
|                                                | Protest/reject                                                                      |
|                                                | Continue pleasurable action                                                        |
|                                                | Attract attention                                                                   |
| **Level III**
Unconventional Pre-symbolic Communication    | INTENTS for which behaviors are used by child                                       |
|                                                | Refuse/reject                                                                       |
|                                                | Request more of an action                                                          |
|                                                | Request a new action                                                                |
|                                                | Request more of an object                                                          |
|                                                | Request a new object                                                                |
|                                                | Request attention                                                                   |
|                                                | Show affection                                                                      |
# Development of Communicative Intent

<table>
<thead>
<tr>
<th>Level of Communication</th>
<th>Pragmatic Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level IV</td>
<td>All of the previous intents + Greetings</td>
</tr>
<tr>
<td>Conventional Pre-symbolic Communication</td>
<td>Offer/share</td>
</tr>
<tr>
<td></td>
<td>Direct another person’s attention to something</td>
</tr>
<tr>
<td></td>
<td>Polite forms (please, thank you)</td>
</tr>
<tr>
<td></td>
<td>Confirm/negate (yes/no)</td>
</tr>
<tr>
<td></td>
<td>Ask questions</td>
</tr>
<tr>
<td>Level V</td>
<td>All of previous + Request absent object</td>
</tr>
<tr>
<td>Concrete Symbolic Communication</td>
<td>Label</td>
</tr>
<tr>
<td>Level VI</td>
<td>All of previous intents + Comment</td>
</tr>
<tr>
<td>Abstract Symbolic communication</td>
<td></td>
</tr>
<tr>
<td>Level VII</td>
<td>All of previous intents</td>
</tr>
</tbody>
</table>

Communication Intervention for Children with Severe and Multiple Disabilities
Charity Rowland, PhD., & Philip Schweigert, M.Ed.
Oregon Health & Science University
Design to Learn Projects
1600 SE Ankeny, Portland, Oregon
Intervention

• Is about building on what we understand about the child and her knowledge of and relationship to the social and physical world
Goal setting

• What level of communicative competence to target (I-VII)

• What communicative behaviors and intents/functions to target
–Does the learner readily exhibit her current communication skills whenever the opportunity arises or does it only occur when she is given very specific prompts

-Is the learner able to use his present skills across a variety of topics settings and with different partners
Where to target communication opportunities

• Ideally any- and every- where
• If necessary pick those situations where the child’s interests are the greatest
• AND where you can insure the most consistency from the social environment
<table>
<thead>
<tr>
<th>Schedule</th>
<th>ACTIVITY</th>
<th>Reinstatement</th>
<th>Materials in activity</th>
<th>Motivating to make choices</th>
<th>Opportunities to request attention or other communication</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Finished activities</td>
</tr>
</tbody>
</table>
### Level III-IV

<table>
<thead>
<tr>
<th>GOALS</th>
<th>ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>• will demonstrate ability to discriminate objects from array to find desired object</td>
<td>- Observe learner to determine best channel(s) for taking in information and discriminating between</td>
</tr>
<tr>
<td>• Will request attention to make requests or make a choice from array that is accessible</td>
<td>- Present learner with array of objects to examine/select from</td>
</tr>
<tr>
<td>• will engage receiver and express desire to terminate interaction with topic</td>
<td>- Explore new objects/activities with shared/motivating features in multiple opportunities</td>
</tr>
<tr>
<td>• will increase # of topics of interest</td>
<td>- Identify and increase activities that learner can make choices in</td>
</tr>
<tr>
<td>• will demonstrate ability to request attention from receiver when in close proximity and within (5) feet</td>
<td>- Sabotage familiar activities to encourage learner to persist, or change effort to gain attention</td>
</tr>
</tbody>
</table>
Assessment

• **Assessment of Skills.** Indicate if you are conducting an assessment to determine the learner’s communicative behaviors and intents in the home and or school environment.

• **Assessment of Preferences.** Indicate if you are investigating what is motivating to the learner at this time. Often times this is an ongoing part of instruction.

• **Symbol Type Probe.** Not Applicable

• **Assessment of Environment.** Indicate if you are conducting an analysis of the child’s environment to determine existing and new supports to learning.
Teaching Routine: (cues, responses and consequences)

- **Materials/Vocabulary.** List the specific materials used in this activity to teach or practice the target skills.

- **Array size.** Indicate the number of objects presented at one time.

- **Distractors.** If appropriate, describe whether the objects other than the desired one in the array are nothing (unknown), non-preferred or equally preferred items.

- **Instructional Format.** Describe the manner in which objects are presented to the learner (e.g. to his left, randomly, with contrasting backgrounds, one at a time, etc.). Describe how the learning opportunity is to be provided (e.g. Direct Instruction or Environmental Engineering; duration and manner of interaction before pausing, alternating treatment reinforcement first then no reinforcement phase etc).

- **Scanning.** Describe any assistance provided as needed to insure that the learner is aware of what is available.
Teaching routine (cont’d)

• **Instructional Cues.** Describe what the teacher does to elicit a response from the learner.

• **Targeted Behavior.** Describe how the learner is to respond. This may include any mechanical adaptation.

• **Time/Latency.** Indicate the amount of time to be allowed the learner to respond.

• **Level of Assistance.** Describe any physical assistance, model/demonstration, or other assistance that is being provided to the learner to make his response.

• **Protest/Reject.** Describe the behavior or absence of behavior, used by the learner to reject choices or further engagement with current activity.

• **Consequence.** Describe the manner in which the partner responds when the learner makes a correct and, (if possible/appropriate), an incorrect response.
Environment

• **Setting.** Describe the context in which the learning opportunity is being targeted.

• **Partner.** List the person(s) with whom the learner will be interacting in the target activity.

• **Position.** Describe any unique positioning considerations that will be made to enable the learner to respond. This may include partner’s position in relation to the learner.
<table>
<thead>
<tr>
<th>Child</th>
<th>Current Date</th>
<th>Projected Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skill/Function</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Assessment
- Assessment of Skills
- Assessment of Preference
- Symbol Type Probe
- Assessment of Environment

### Teaching Routine (Cue, Assistance, Response, Consequence)
- Vocabulary/Materials
- Array Size
- Distractors
- Instructional Format
- Scanning
- Instructional Clues
- Targeted Behavior
- Time/Latency
- Level of Assistance
- Protest/Reject
- Consequence

### Environment
- Setting
- Position
- Partner
## Levels V-VII

<table>
<thead>
<tr>
<th>GOALS</th>
<th>ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learner demonstrates 1:1 correspondence between symbol and referent to make choices, or to request</td>
<td>During an activity make sure learner is aware of all available topics (they are present ..visually, tactiley and/or auditorally accessible) learner makes request for desired object</td>
</tr>
<tr>
<td>Learner demonstrates 1:1 correspondence between symbol and referent to request objects not present</td>
<td>During familiar activity learner will make request for desired object and then retrieve corresponding object to confirm</td>
</tr>
<tr>
<td>Learner will gain the attention of a receiver and use symbol to make request for desired item/activity (see also suggestions for promoting progress )</td>
<td>Ensure that symbol system is accessible to learner at all times</td>
</tr>
<tr>
<td></td>
<td>Create opportunities for learner to develop and practice new communicative intents (e.g. to label or comment; to direct attention; to answer questions)</td>
</tr>
</tbody>
</table>
## Types of Tangible Symbols

<table>
<thead>
<tr>
<th>LEVELS OF REPRESENTATION</th>
<th>REFERENT</th>
<th>SYMBOL</th>
</tr>
</thead>
</table>
| Identical Object         | Raisin, Bolt              | A few raisins glued to a piece of cardboard  
A bolt is shrink-wrapped onto cardboard backing |
| Partial or Associated Object | Shoe, Bicycle, Car/Out Eating | Shoelace, Handle Grip, Car Key, Spoon                                   |
| One or Two Shared Features | Pretzel, Multicolored Vinyl, Therapy Ball | Thermoform of pretzel (shares shape & size with referent  
Wood block covered with multicolored vinyl  
Shares texture and color with referent; for blind individuals only one feature <texture> is shared |
| Artificial Association    | Work Table, Cafeteria     | Ribbed rubber mat is attached to table: a small piece of the mat serves as the symbol  
Wooden apple shape is attached to cafeteria door: a similar shape serves as the symbol |
| Photographs               | Self Explanatory          |                                                                        |
| Line Drawings             | Self Explanatory          |                                                                        |
“Tangible” Means...

• Physically Tangible

• Conceptually Tangible - to the INDIVIDUAL USER (eye of the beholder)
Tangible Symbols Instruction
Key Elements

- Readiness
- Motivation
- Indicating Response
- Comprehension
- Promoting Progress
Readiness

Does the child use his behavior on purpose to express his needs and desires to other people?

• Clearly tries to let someone else know
• Has a way to do it that is readable doable and acceptable

• If NO: Does he need more experience learning how and why to communicate?
• If YES: Decide on what type of symbol is right for him at this time
Groups Based on Type of Symbol Acquired

- **Group I:** no symbols acquired (n = 6)
- **Group II:** tangible symbols acquired (n = 25)
- **Group III:** tangible and abstract symbols acquired (n = 10)
Some studies have suggested that children first develop the ability to

- Recognize (point and label) picture
- Then interpret them (get information about their world from them)
- Finally learn that pictures can be used to represent specific reality (using them for symbolic communication)
It may be possible to teach someone to use a more abstract symbol through repeated practice but the task is far easier if the learner understands the representation inherent in the symbol.
<table>
<thead>
<tr>
<th>Type of Symbol (Level of Representation)</th>
<th>Referent Items</th>
<th>Array of Symbols</th>
<th>Distractors Used / Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic Line Drawing</td>
<td></td>
<td>+ - - - + - - +</td>
<td></td>
</tr>
<tr>
<td>Specific Line Drawing</td>
<td></td>
<td>+ - - +</td>
<td></td>
</tr>
<tr>
<td>Photograph</td>
<td>Book</td>
<td>1 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Video</td>
<td>2 6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electronic Game</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Symbol sharing only one or two features with referent (e.g., size, shape, color, texture)</td>
<td>Book</td>
<td>1 15 16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Video</td>
<td>2 17 18</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electronic Game</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Partial or associated object (e.g., a wheel for a toy car)</td>
<td>Book</td>
<td>7 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Video</td>
<td>8 12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electronic Game</td>
<td>9 11 13</td>
<td></td>
</tr>
<tr>
<td>Identical object</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Comprehension

• When the child indicates a symbol he should also be asked to show indicate what the symbol means (1:1 correspondence)
• Use random placement of objects and symbols to avoid creating a position bias
• When the data clearly indicates that the child understands what the symbol stands for then it may be no longer necessary to require the comprehension check
Pros:
You know. You don’t have to guess.

• Assuming that a student understands symbols when he doesn’t isn’t doing him any favors.
  • As long as you make this faulty assumption, you are depriving the student of appropriate communication instruction.
  • You are also teaching the student that it doesn’t make any difference what symbols he indicates
A comprehension check

• provides an objective measure upon which to base your decisions.
• gives sound documentation of your efforts to tailor a communication system to the individual user (and can be used to explain to parents and professionals why you made the decision you did)
• Documentation is always good
Cons of a comprehension check

• The comprehension check delays the provision of the natural reinforcement for communicating.

• The comprehension check is one more thing to keep track of and take data on.

• The comprehension check may show you that the student doesn’t understand his symbols. Everyone was happier when they assumed that he did!
Promoting Progress

How do you help the child to keep learning?

• Expand vocabulary
• Increase size of symbol array
• Generalize the use of symbols to other situations and with other people
• Teach new functions
• Multi-symbol utterances
• Portability
• Change symbol type
Fast mapping

• As the learner begins to acquire vocabulary at a certain level of symbolic representation new vocabulary may be learned at a faster rate

• Moving the learner to a more abstract level too soon rather than allowing them to develop a meaningful vocabulary at the current level may preclude this fast mapping
Intentional Communicative Acts

• More Likely to occur;
  – In the context of highly preferred activities
  – When the child is in close proximity to a communication partner who is responsive

Other variables increasing the likelihood of Intentional communication

- Allow the learner as much control as is possible
- Providing a predictable environment
- Ensuring that the learner has a viable means of communication

- Rowland & Schweigert (1993) Analyzing the Communication Environment to Increase Functional Communication JASH 18, 3
Variables (cont’d)

• Providing a responsive environment
• Responding appropriately to the learner’s behavior according to his intent
• Shifting stimulus control away from teacher contrived to naturally occurring stimuli

• Rowland & Schweigert (1993) Analyzing the Communication Environment to Increase Functional Communication Communication JASH 18, 3
Once you have provided an opportunity to communicate . . .

- EXPECT a response
- WAIT for a response
- PROMPT if no response occurs
- RESPOND to student’s communication appropriately
Sections on Design to Learn Inventory

- TRANSITION
- ACTIVITY
- ADULT’S INTERACTION
- STUDENT’S EXPRESSIVE AND RECEPTIVE COMMUNICATION SYSTEM
- PEER INTERACTION
- OPPORTUNITIES TO COMMUNICATE (parallels Communication Matrix)
- OPPORTUNITIES TO USE OBJECTS (parallels Hands-On) MATERIALS
Transitions

1. Teacher communicates about activity
2. Student may communicate about activity
3. Student chooses activity
4. Student helps prepare for activity
5. Activity terminated when student desires
6. Students help clean up afterwards

The Activity

1. Student is motivated by activity
2. Instructional demands don’t frustrate
3. Student receptive to interaction
4. No prolonged distractions
5. Teacher available for interaction
6. Performance data collected
7. Routine consistent, with variations

Adult’s Interaction

1. Teacher participates as an equal
2. Teacher appears to enjoy activity
3. Teacher allows student time to communicate
4. Student’s interest acts pace of activity
5. Teacher encourages independence

Communication System

1. System is appropriate
2. Can communicate about specifics
3. Symbol comprehension assessed
4. Has means to gain attention
5. Has means to say “Finished”
6. Has access to system at all times
7. Position makes communication easy
8. Student understands teacher’s communication
9. Teacher uses student’s symbolic system

Peer Interaction

1. All members can participate
2. Students have clearly specified roles
3. Students switch roles
4. Student enjoys peer partner
5. Peers encourage, don’t do everything for
6. Peers adequately trained
7. Includes peer to model targetd skills
8. Group size facilitates interaction
9. All members use common system to communicate

Opportunities to Communicate

1. Gain Attention
2. Request More
3. Request Something New
4. Request Absent item
5. Protest
6. Greetings / Social / Affection
7. Label / Comment
8. Confirm / Negate
9. Ask Questions
10. Direct Attention

Opportunities to Use Objects

1. Negotiate Barriers
2. Search and Locate
3. Use Containers
4. Use Tools to Gain Access
5. Basic Object Use
6. Combine Objects
7. Activistic Objects
8. Construct Objects
9. Pretend
10. Understand Associations
11. Use Representational Information
12. Simple Interactions with Peers
13. Cooperate with Peers
14. Play Games with Peers

Materials

1. Materials foster interaction
2. Have separate parts to request
3. Afford opportunities to request help
4. Student enjoys materials
5. Peers enjoy materials
6. Materials provide practice of object skills
7. Materials encourage new object skills