Assessment of Early Communication

www.communicationmatrix.org

Dr. Charity Rowland
Four Elements of Communication

- Sender
- Means of Expression
- Elements of Communication
- Receiver
- Topic
The recognition of the association between one’s behavior and environmental outcomes is critical for future learning.
(Watson, 1966)
The act of reference emerges not as an individual act but as a social one (Werner and Kaplan 1963)
I. Pre-intentional Behavior

• The child’s behavior is not under his own control. It is in reaction to things (such as feeling hungry or wet or sleepy). Parents interpret the child’s state from his general behaviors, such as body movements, facial expressions and sounds.
II.

Intentional Behavior

• The child’s behavior is now intentional (under the child’s control), but she does not understand that “If I do this, Mom or Dad will do that for me”–in other words she does not communicate intentionally yet. Parents continue to interpret the child’s needs and desires from her behavior, such as body movements, facial expressions, vocalizations and eye gaze.
III.

Un-conventional Communication

• The child uses pre-symbolic behaviors intentionally to express his needs and desires to other people. They are called “unconventional” because they are not socially acceptable for us to use as we grow older: they include body movements, vocalizations, facial expressions and simple gestures (such as tugging on people).
IV.
Conventional Communication

- The child uses pre-symbolic behaviors intentionally to express her needs and desire to other people. “Conventional” gestures include behaviors such as pointing and nodding the head “yes”. We continue to use conventional gestures as adults to accompany our language. Note that many of these gestures (and especially pointing) require good visual skills and may not be appropriate for children with severe vision impairment.
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
# Development of Communicative Intent

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

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

For Levels V, VI or VII, specify types of symbols used (e.g., picture symbols, 3-dimensional symbols, manual signs, speech)

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**FEATURES**

- **Pre-Intentional Communicative Behaviors**
  - Expresses comfort
  - Expresses interest in other people

- **Intentional Communicative Behaviors**
  - Expresses communicative intentions
  - Expresses communicative functions

- **Symboitic Communication**
  - Expresses communication through the use of symbols

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**COMMUNICATION MATRIX PROFILE**

Charity Rowland, Ph.D.
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www.designtolearn.com
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>
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<tbody>
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<td>Yes</td>
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Pre-Symbolic Communication
Key Elements of Individualized Instruction

- **MOTIVATION:** What are reinforcing topics and settings for the learner to communicate about?

- **POTENTIAL RESPONSES:** How will the learner express himself/herself?

- **GAINING ATTENTION:** How will the learner initiate communication with others?

- **REINSTATEMENT:** How will the learner indicate to another person that s/he would like to continue an interaction?

- **REQUESTING/CHOICEMAKING:** How will the learner indicate his/her preference between two or more objects?

- **PROMOTING PROGRESS:** How do you design instruction to promote steady progress?
<table>
<thead>
<tr>
<th>Level of Communication</th>
<th>Intervention Goals</th>
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<tbody>
<tr>
<td>I. Pre-intentional (Reactive) Behavior</td>
<td>Establish purposeful behavior by creating highly responsive environments.</td>
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<tr>
<td>II. Intentional (Pro-active) Behavior</td>
<td>Respond to potentially communicative behaviors so that the child becomes aware of their communicative purpose.</td>
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<tr>
<td>III. Nonconventional Presymbolic Communication</td>
<td>Shape nonconventional gestures into conventional gestures and/or target symbol use.</td>
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<tr>
<td>IV. Conventional Presymbolic Communication</td>
<td>Teach 1:1 correspondence between symbols (concrete or abstract) and referents.</td>
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<tr>
<td>V. Concrete Symbolic Communication</td>
<td>Teach 1:1 correspondence between abstract symbols and referents.</td>
</tr>
<tr>
<td>VI. Abstract Symbolic Communication</td>
<td>Teach the combination of symbols into two-and three-symbol utterances.</td>
</tr>
<tr>
<td>VII. Formal Symbolic Communication (Language)</td>
<td>Expand semantic and syntactic abilities.</td>
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</table>
Level I
Janssen, Riksen-Walraven, & Van Dijk, 2003 describe characteristics of Harmonious interactions including:

- **mutual attention** implying that child and partner are open to each other and shared attention
- **reciprocal attunement** requiring contingent responsivity, sensitivity to each others’ signals and leaving space/pausing for the other to take a turn
- **adequate emotional regulations** which refers to the ability to maintain or regain an appropriate arousal level
Arousal State Tracking  
(adapted from the SLK 2005 by M. Smith)

• *States; (descriptions of states from Brazelton et al 1977; Snell and Brown, 2002 as presented in SLK)
• Asleep: Eyes closed rhythmic breathing and/or little or no movement No evident response to sensory stimuli
• Drowsy: Heavy eyelids repeated opening/closing of the eyes, unfocused stare intermittent orientation to sensory events in the environment for a short time
• Quiet Alert: Open eyes. Focused attention on some sensory event in the environment, Attention may be visual tactile or auditory
• Active Alert: Observable interaction with the object or person stimulating attention some voluntary intentional movement
• Fussy: Mild distress and inability to maintain orientation/attention
• Crying/Agitated frown cry irregular breathing increased tension /body tone engage in self injurious behavior
## Arousal State Tracking
*(adapted from the SLK 2005 by M. Smith)*

<table>
<thead>
<tr>
<th>Child</th>
<th>Observer</th>
<th>Date</th>
<th>Time interval</th>
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</table>

| Time  | Activity | State* | **Position** (how was the child positioned at that moment) | **Specific stimuli available** (what was available to the child? e.g. music, food, vestibular at that moment) | **Ambient conditions** (describe the physical environment e.g. hot, noisy, overhead lighting at that moment) | **Social Conditions** (Who was interacting with the child do not count if person present but not engaged w/ child at that moment) |
The recognition of the association between one’s behavior and environmental outcomes is critical for future learning. (Watson, 1966)
Learned Helplessness
(Seligman, 1975)

- A profound lack of perceived control over the environment may result in the loss of motivation to effect changes in their world
- This sense of helplessness can impede future learning
- May ultimately result in depression
Meaningful Contingency Learning Experiences

- prepare the child to demonstrate learning in subsequent opportunities of response contingent learning (Finkelstein and Ramey, 1977)
- Serve to motivate the child to seek out additional opportunities to demonstrate such control and mastery
Uses of Microswitches

- To adapt *recreational and leisure* materials for use by learners with orthopedic impairments
- To teach *motor skills* by giving reinforcement when correct response or position occurs
- To teach *cognitive skills* such as contingency awareness, discrimination, matching
- To allow learners with orthopedic impairments to *control the physical environment* such as turning on the lights or blender
- To allow individuals with severe orthopedic impairments to *participate in a regular activity* independently to some degree
Uses (cont’d)

• To enable individuals with severe orthopedic impairments to produce communicative behaviors:
  
  • To gain attention
  
  • To augment natural forms communication that may be less effective
Misuses

• No clear functional objective for using them
• Their use diverts attention from the purpose for which they were designed
• The switch and “independent play” it results in, becomes an excuse to ignore the user.
Criteria for Success

- **Objective measure of child performance**
  - Performance is contrasting to baseline or other condition

- **Durable (replicable) performance**
  - It’s more than a one time thing for the learner
  - Performance can be repeated on subsequent probes

- **Collateral evidence**
  - Other indicators of child’s understanding of control as may be found in affective/emotional responses, tone, levels of alertness
## Level II

<table>
<thead>
<tr>
<th>GOALS</th>
<th>ACTIVITIES</th>
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<tbody>
<tr>
<td>• Child will indicate desire to repeat preferred interaction initiated by partner</td>
<td>Engage child in consistent variety of social interactions with pauses to allow child to indicate desire to continue or stop or change</td>
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<tr>
<td>• Child will indicate desire for more of an object that she has just had</td>
<td>Engage child in consistent variety of interactions with objects pausing to allow child to indicate desire to continue or stop or change</td>
</tr>
<tr>
<td>• Child will indicate differentiated response for different stimuli</td>
<td>Explore new objects/interactions with learner</td>
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<tr>
<td>• will increase # of topics of interest</td>
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Reinstatement

- Helps to establish a relationship with the child
  - a reason to want to gain your attention

- Helps child link his behavior to his environment
  - May lead to development of detectable and doable behaviors

- Helps to provide an access to the environment
  - Familiarity with different topics
  - Preferences for certain topics
Reinstatement may be introduction to conversation

- Turn-taking
- Initiating
- Maintaining
- Ending or changing interactions
**Child:**

“Let’s Do It Again” Interaction tracking

**Partner Initiates** Interaction w/ child.
- **Pause briefly** (10 sec/or/depending on child*)
- **Observe** for child’s attempt to start or get you to start activity again

**Child response** (ex: partner bounces child on ball and pauses…child moves up and down like she is trying to bounce herself)
- note: if this is a new interaction, it may be necessary to repeat it several times before the child develops an idea of what its about and is able to respond  * the time it takes for a child to respond may differ from child to child and may change as he/she becomes more familiar with the interaction)

<table>
<thead>
<tr>
<th>What did you do to interact with the child (Date)</th>
<th>What did the child do to tell you, “Lets do it again”</th>
<th>What did you do to interact with the child (Date)</th>
<th>What did the child do to tell you, “Lets do it again”</th>
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<td><strong>will demonstrate</strong> 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>
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<tr>
<td><strong>Will request</strong> attention to make requests or make a choice from array that is accessible</td>
<td>- Present learner with array of objects to examine/select</td>
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<tr>
<td><strong>Will engage</strong> receiver and express desire to terminate interaction with topic</td>
<td>- Explore new objects/activities with shared/motivating features in multiple opportunities</td>
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<tr>
<td><strong>Will increase</strong> # of topics of interest</td>
<td>- Increase activities that learner can make choices in</td>
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<tr>
<td><strong>Will demonstrate</strong> ability to request attention from receiver when in close proximity and within (5) feet</td>
<td>- Sabotage familiar activities to encourage learner to persist</td>
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When the child is at/near the light room;
1. Partner should move nest to child and be available for interacting with him (this means physically next to him, eye level and talking to him …sharing his attention)
2. When the child shows some interest (for example banging on the door or whining/vocalizing)
3. Look for child to engage you for help to open the door. (for example by taking your hand or looking at you or turning toward you) – If he engages you, open the door retrieve basket of toys from inside the room and offer him a choice. – If he doesn’t engage within 3-5 seconds assist him to tap your hand and then open the door retrieve basked of toys from inside the room and offer him a choice
4. Check off if he engaged you independently or with assistant
5. This should be at least 1 time each day

<table>
<thead>
<tr>
<th>I=indep/A=assisted</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Thursday</th>
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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.** If 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.