Establishing Early Communicative Skills: Augmentative Communication Practices with Learners Experiencing ASD.

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Reichle (2011)

Augmentative and Alternative Communication

An area of practice that attempts to compensate (either temporarily or permanently) for the impairment and disability patterns of individuals with severe expressive communication disorders.

ASHA, 1989, p. 107

Reichle (2011)

Proportion of Nonverbal Children with Autism

- 33% to 50% of children with autism have been reported as nonverbal
  (Bryson, 1996; Lord and Paul, 1997)

- 14-20% of children diagnosed with ASD at 2 receiving intensive early intervention remain nonverbal
  (Lord, Risi and Pickles, 2004)

Questions Parents Ask

• Will my child learn to speak?
  - Yoder & Layton (1988)

• Will implementing an augmentative communication system impede speech acquisition?
  - Millar (2009)

Reichle (2011)

Modes of Communication

- Gestural

- Graphic

- Vocal/Verbal

Reichle (2011)

Contact Gesture

The child’s hand touches another person or object

Reichle (2011)
Distal Gesture

The child’s hand does not touch a person or object (e.g., open-handed reach, pointing at a distance, waving)

Reichle (2011)

Communication Development

Pre-Intentional  Contact  Distal  1st words

Reichle (2011)

Early Exchanges Between Children and Caregivers

- 5 months: TAKE (receive object from reach)
- 6-8 months: GIVE (extend to another and relinquish)
- 7-8 months: BID FOR RETURN OF OBJECT (open and close hand)
- 8-11 months: GIVE
- 8-13 months: SHOW
- 8-10 months: CONVENTIONAL BID FOR RETURN (e.g., pound fist)
- 10-11 months: VOCALIZATIONS EMBEDDED INTO GAME
- 9-14 months: POINT

Reichle (2011)

Gestures and Communicative Functions-9-12 Month Old Children

Behavior Regulation
- Protest (use body, push away object with hand/s)
- Request Objects (reach for object, pull on adult’s hand with object, point to obtain object)
- Request Actions (reach to be picked up, do the action)

Social Interaction:
- Seek Attention (body movement, grab hand, bang object)
- Social Games (participate by imitating, initiate games)
- Representational Gestures (“bye bye”, imitation clapping, show functions of objects)

Joint Attention:
- Comment (show object, give object)

Reichle (2011)

Children with ASD Tend to Rely on More Primitive Gestures

- Leading
- Pulling
- Manipulating partner’s hand

Reichle (2011)

Differences that can be present in the Gestures of Children with ASD

Gestural Use
- Fewer gestures are combined with vocalizations than occur in typically developing children
- Less pointing
- Fewer conventional gestures
- Use of Unconventional Behavior to Communicate (both verbal and non-verbal)

Wetherby et. al. (2000)
Early Communicative Challenges in Autism (Prelock, 2006)

**Spoken Language**
- Fewer consonants acquired than counterparts
- Greater propensity to use challenging behavior to communicate
- Limitations in joint attention communicative functions/higher proportion of imperatives
- Echolalia/verbal perseveration

Language Use Contd.
- Incessant questioning
- Difficulty with function words
- Selecting topics
- Knowing when not to interrupt
- Maintaining topics including communicative repair

Speech Use
- Children with Autism produce fewer vocalizations
  - Monotone Voice Quality (Fay & Schuler, 1980)
  - Inappropriately high or low pitch/flat intonation pattern
  - Inappropriate loudness (Lord & Paul, 1997)
  - Difference in nasal resonance (Shriberg et al., 2001)

Graphic Mode Communication

Graphic - Two- and/or three-dimensional symbols used to represent objects/events and related concepts to produce or receive messages
- Product Logos
- Photographs
- Line drawings
- Traditional Orthography
- Arbitrary symbols

What Graphic Mode Options Are Available for Children with Autism Spectrum Disorders?
1. Teaching Initial Symbols
2. Displaying Symbols
3. Navigating to Find Symbols

Displaying Graphic Symbols
Displaying Symbols—Some Low Tech Options

- Board
- Book
- Wallet

Reichle (2009)

Wallets

Accordion Wallet

Book Wallets

Communication Wallet

Putting Symbols in a Communicative Display

Traditional Grid Display

- Vocabulary represented by separate AAC symbols in “boxes”
  - Language is taken out of context
  - “Decontextualized”
- Concepts are presented separately and out of an environmental context

Reichle (2009)

Chronology of the day

Ease of access

Frequently used words/symbols

Reichle (2009)
Visual Scene Display

- Vocabulary embedded under “hot spot” in visual scene
  - Digital photo of child’s experiences

- Vocabulary presented in meaningful context
  - Concepts related visually and conceptually as in life

Visual Scene or Traditional Grid?

- Very young children were more accurate using visual scene layouts than traditional grid layouts (Drager, Light, Fallon, Jeffries, & Speltz, 2003)

- A challenge is how best to transition to the use of other layouts to facilitate language use

- For children with ASD the context provided may actually hinder performance by distracting attention away from the target symbol-

Navigating Arrays Containing Numerous Symbols

- symbols and items on the board are stationary in a permanent location

Dynamic Displays

Non-Electronic (Three subject notebook)

Electronic
- Once a symbol is selected the device automatically displays a new page of symbols—a symbol can be directly linked to another page (eg. much like a windows operating system).

Multiple Sheets

- I’m finished.
- I need help!
- This is fun.
Why Choose Sign

• Doesn’t require imitation skills (Reichle et al., 1991; Sundberg, 1993)
• Signs are less transient than words (Fulwiler & Fouts, 1976)
• May overcome negative history associated with speech (Sundberg & Partington, 1998).

Reichle (2009)

Wendt Systematic Review-Sign (2009)

N=21 studies with evidence better than inconclusive

• Strong evidence supporting speech gains (given imitative skills).
• Sign places greater communicative burden on partners of signer.

Reichle (2009)

GETTING STARTED-LOW TECH APPLICATIONS

Reichle (2009)

Efficiency from the interventionist’s perspective

• How difficult is it going to be to implement the intervention?
• How easy is the response to prompt?
• How quickly will the challenging behavior diminish?
• To what extent will the child’s new response be maintained?
• To what extent will the response be generalized and not over-generalized?

Reichle (2009)

Why is Matching Important?

When a person produces a uses a graphic symbol they are matching that symbol to a real object or event in the environment

Reichle (2009)

Identity Match to Sample

• Across opportunities - randomly swap choices

Reichle (2009)
Also the choices must be randomized

• Then a choice can be made.

Identity Match to Sample

• Randomly swap samples

Two of these 3 comparisons are likely to be require in matching.

• Then a choice can be made.

So you must be able to:
1. Discriminate between items
   -And-
2. Be able to follow an instructional cue offered by the sample

Starting Point - Simple Discrimination

Data with Sample Indicated

<table>
<thead>
<tr>
<th>Trial</th>
<th>Left Choice</th>
<th>Right Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><img src="#" alt="Red Car" /></td>
<td><img src="#" alt="Yellow Car" /></td>
</tr>
<tr>
<td>2</td>
<td><img src="#" alt="Yellow Car" /></td>
<td><img src="#" alt="Red Car" /></td>
</tr>
<tr>
<td>3</td>
<td><img src="#" alt="Red Car" /></td>
<td><img src="#" alt="Yellow Car" /></td>
</tr>
<tr>
<td>4</td>
<td><img src="#" alt="Yellow Car" /></td>
<td><img src="#" alt="Red Car" /></td>
</tr>
<tr>
<td>5</td>
<td><img src="#" alt="Red Car" /></td>
<td><img src="#" alt="Yellow Car" /></td>
</tr>
<tr>
<td>6</td>
<td><img src="#" alt="Yellow Car" /></td>
<td><img src="#" alt="Red Car" /></td>
</tr>
<tr>
<td>7</td>
<td><img src="#" alt="Red Car" /></td>
<td><img src="#" alt="Yellow Car" /></td>
</tr>
<tr>
<td>8</td>
<td><img src="#" alt="Yellow Car" /></td>
<td><img src="#" alt="Red Car" /></td>
</tr>
</tbody>
</table>
Visual Matching

- IDENTICAL - the learner matches a choice to a sample with exactly the same perceptual features
  - e.g. matches a photo of a dog to another identical photo of the dog

- NON-IDENTICAL - the learner matches a sample to a perceptually different choice
  - e.g. matching a photo of a ball to a real object (ball)

Nonidentity Matching

Examples of available speech

http://www.nextup.com/?source=google_tts&cIntent&cId=CNT7E942q5lCFOILxogdi3LQRA

AAC Manufacturer Links

• [www.dynavoxtech.com](http://www.dynavoxtech.com)  
  DynaVox Technologies
• [www.prentrom.com](http://www.prentrom.com)  
  Prentke Romich Company
• [www.assistivetech.com](http://www.assistivetech.com)  
  Assistive Technology, Inc.
• [www.ablenetinc.com](http://www.ablenetinc.com)  
  AbleNet Inc. (Roseville)

Proloquo

• [http://www.youtube.com/watch?v=ulf11Kg8-II](http://www.youtube.com/watch?v=ulf11Kg8-II)
• [http://www.proloquo2go.com/resources/article/introductory-videos](http://www.proloquo2go.com/resources/article/introductory-videos)