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When using sign language vs. visuals makes sense

PART 1: LANGUAGE AND COMMUNICATION SKILLS IN CHILDREN WITH AUTISM

by Laura Strachan, MADS, BCBA, Program Manager and Senior Therapist, AlphaBee IBI and ABA Programs

Language disorders are common among children with autism. It has been estimated that about half of children diagnosed with autism will have difficulties developing functional communication and language skills.

CHILDREN WHO DO DEVELOP LANGUAGE often exhibit abnormal patterns in the development of their language skills. Compared to their typical peers, children with autism often demonstrate fewer verbal communication acts, and difficulties with initiating and maintaining communication acts.

A behavioural analysis of language examines language skills (or verbal behaviour) based on the function of words. Skinner (1957) suggested that verbal behaviour, like any behaviour, is learned and serves a particular purpose (or function) for the speaker. The principles of Applied Behaviour Analysis (ABA) can be applied to the assessment and treatment of language skills just like they would for any other behaviour.

Skinner proposed that verbal behaviour involves various types of speaker (and listener) behaviour. In his analysis, Skinner defined several verbal operants including:

- **Mand:** requesting items, events, information, help, etc. For example, "I want a cookie," "stop that," child signs "book" when they want a book.
- **Receptive language skills:** following directions/requests of others. For example, the teacher says "stand up" and the child stands up.
- **Tact:** labeling items and events in the environment. For example, the teacher points to a picture of a dog and says "what's that" and the child says "dog."
- **Echoic:** Saying what someone else says, or vocal imitation. For example, the teacher says "book," and the child says "book."
- **Intraverbal:** talking about items, people and events when they are not present. For example, the teacher says, "Ready, set…" and the child says "go." Teacher says, "What does a dog say?" and the child says, "woof woof." Teacher says, "What is your name?" and the child says "Billy." Teacher says, "How do you get to school?" and the child says, "bus."

Before beginning a language-based intervention it is important to conduct a language-based assessment. The primary focus of the assessment should be to determine verbal deficits and examine the child's language across a variety of contexts, different materials and different people. Two commonly used language-based assessments and curriculum guides used in Intensive Behavioural Intervention (IBI) programs are the Assessment of Basic Language and Learning Skills-Revised (ABLLS-R; Partington, 2008) and the Verbal Behaviour Milestones Assessment and Placement Program (VB-MAPP; Sundberg, 2008). These assessment tools are comprehensive and contain various sections that cover a variety of early language skills (as well as social, play, group learning, and pre-academic skills). They allow for a brief overview of current skills and can aid in determining where to start teaching. Both the ABLLS and VB-MAPP are designed to be used as initial

assessment tools but can also be used ongoing to chart progress and determine the next lesson targets. For children who do not have vocal language it is important to teach them a functional alternative, or augmentative communication system. There are several different forms including sign language, picture systems, textual systems, and voice output devices. What follows is a discussion about the advantages and disadvantages between sign language and picture systems and some suggestions for selecting the most appropriate augmentative system based on the needs of the learner (Carbone Workshop #4 manual, 2007; Sundberg and Partington, 1998).

Sign language is a topography-based augmentative communication system where each word has a corresponding sign. Advantages of using sign language include the following:

- If a child has strong motor imitation skills, imitation can be used to teach signs. Even if a child has poor imitation skills, sign language still may be the preferred method. Physical prompts and imitation can be used to teach and often imitation skills improve as a result of teaching sign language.
- Signs are free of environmental supports (the child always has their hands with them).
- Signs are similar to "talking" in that both are a topography-based language. There is a different movement (sign) for each item as there is a different word for each item. In picture systems there is only one movement or response (selection of a picture) for each item.
- Sign language is more easily and quickly acquired by most non-vocal children with autism.
- There is some evidence that sign language provides an advantage (over picture systems) in bringing vocalizations.
- Sign language allows for the development of verbal behaviour across all verbal operants.

- There is an existing sign language community (it is the third most common language in the United States).

Disadvantages of using sign language include:
- Parents and teachers must have special training.
- All others in the child's environment need to use sign language for it to be a functional system for the child.
- Each sign must be taught and shaped.

Picture systems are a selection-based augmentative communication system where the child selects a picture or icon representing an item. Advantages of picture systems include:
- Listener does not need special training.
- Teacher does not need special training to shape the response: Same response every time (exchanging a picture). Although the teacher must be familiar with the PECS manual to be teaching in the proper order of phases.
- Simple matching to sample may make initial acquisition easier.
- May facilitate spoken language.

Disadvantages of using picture systems include:
- Requires environmental supports (must have the pictures/binder present at all times).
- No existing verbal community.
- Selection-based verbal behaviour may be more difficult to acquire at more advanced phases:
  - Complex conditional discrimination required with multiple steps.
  - Symbols become more abstract as more language develops.

How do you choose the appropriate augmentative system for your learner? A system should be selected that best suits the learner and should be used all day, in all environments, and with all

people working with the child. There are some additional factors to consider.

First, the optimal system should be relatively easy for the child to learn, require the least response effort, and become acquired fastest. There is some evidence that sign language may be more efficient at reducing problem behaviour compared to visual systems (Richman, et al. 2001). In addition, Potter and Brown (1997) reviewed the literature comparing sign language to picture systems and concluded that sign language may be acquired more quickly and with fewer errors compared to picture systems. Adkins and Axelrod (2000) found conflicting results.

Second, the augmentative system selected should aid in the development of vocalizations. More specifically, what system is most likely to facilitate development of vocal behaviour (talking)? There is evidence that both sign and picture systems may increase vocalizations in children with autism; however, there is evidence that sign language provides an advantage (over picture systems) in bringing vocalizations (Tincani, 2004).

Finally, for an augmentative system to be a fully functional communication system, it should allow for verbal behaviour across all meanings of words (e.g. mands, tacts, and intraverbals). The goal of a verbal behaviour program is to not only teach requesting but to teach all the functions of verbal behaviour. Only sign language serves as a full linguistic system.

Whether a child uses vocal language or an augmentative system, teaching language skills should be a primary focus of any program for children with autism. Language and communication skills enable the child to communicate their wants and needs and therefore reduce problem behaviours (Carr and Durand, 1984; Sundberg and Partington, 1998). If a child is able to communicate what they want, they will be less likely to engage in problem behaviour to get things they want. In addition, language skills are critical for the development of social and academic skills (Sundberg and Partington, 1998).

Techniques used to teach language skills can be incorporated by parents, teachers and other caregivers. It is important for the child to have many opportunities throughout the day and in all relevant environments to practice language skills. For example, if a child is learning to ask for things he wants, try to incorporate this goal into all of the child's daily activities (e.g. getting dressed, meal times, play time, etc.). Caregivers should look for and create opportunities to prompt the child to ask for what he wants, and then reinforce the child for asking. For example, if the child wants to go outside, prompt him to say "outside" (or sign it or give a picture) and when he does, open the door and go out to play. If the child is thirsty, hold the juice in your hand but out of the child's reach and prompt them to say "juice." When the child says "juice," give them some juice. If you give the child a bit of juice in a cup at a time, then you can practice having them ask for juice a couple of times. If you are playing in the park with your child and they love to swing you can prompt them to say "swing," or "push me." Now and then pause the swing and get the child to ask again. The more practice a child has with using language skills the better they will get at communicating their wants and needs with their caregivers and teachers. At AlphaBee we provide Applied Behaviour Analysis (ABA) and Intensive Behavioural Intervention (IBI) programs to children and youth with autism. Our program takes a verbal behaviour approach to the assessment and treatment of our clients. Our programs are individually tailored to meet the needs of our clients and can range from very focused programs (working on a select number of learning goals) to broad-based programs (focusing on many goals at once and may include language and communication, play and social, personal care and daily living, academic, and fine and gross motor skills). We value input from parents and involve parents in discussion about program goals, and provide parents with training on how to implement strategies themselves.

AlphaBee will host a two-day workshop titled "Beyond the Basics: Advanced Topics in Language Instruction for Children with Autism" presented by Dr. Mark Sundberg. This workshop, on April 11-12, 2013 will discuss issues related to assessing and teaching language skills to children with autism. For further information on other services offered at Alphabee, call Toronto 416-367-5968 Hamilton 905-524-3843, e-mail info@alphabee.com or visit www.alphabee.com. ■

Dr. Jonathan Weiss Appointment

AUTISM ONTARIO congratulates Dr. Jonathan Weiss on his appointment to Chair in Autism Spectrum Disorders Treatment and Care Research at York University.

In his position as Chair in the Autism Spectrum Disorders Treatment and Care Research program, Dr. Weiss will research the effects of mental health and ASD while evaluating how youth and adults manage treatment strategies. Dr. Weiss will explore ways to improve access to care for all. To achieve these goals, Weiss and his team will collaborate with people and families affected by ASD, service providers and government, so that cutting edge research will inform mental health care policy and practice across the country. Autism Ontario is proud to be a contributing member of this process. ■