Speech Pathology and Behavior Analysts: Perspectives, Theories, and Tips to Increase Communication in Children with ASD

Teresa Cardon, PhD., CCC-SLP, BCBA-D

Agenda
- Disclosures
- Theories
- Interventions
- Ten Tips!

Survey Results (Cardon, 2017):

<table>
<thead>
<tr>
<th>Theory</th>
<th>% of SLPs (n=100)</th>
<th>% of BAs (n=34)</th>
<th>% of SLP-BCBAs (n=13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral Approach (Skinner)</td>
<td>14%</td>
<td>91%</td>
<td>77%</td>
</tr>
<tr>
<td>Cognitive/Semantic Approach (Bloom)</td>
<td>41%</td>
<td>3%</td>
<td>10%</td>
</tr>
<tr>
<td>Constructivist/Social Approach (Engelkamp)</td>
<td>15%</td>
<td>3%</td>
<td>8%</td>
</tr>
<tr>
<td>Psycholinguistic/Psycholinguistics Approach (Chomsky)</td>
<td>15%</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>Pragmatic Approach (Bruner)</td>
<td>13%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Behavioral Approach (Skinner, 1957)
- Verbal behavior is defined as, “behavior reinforced through the mediation of other people” where the listener’s response “has been conditioned precisely in order to reinforce the behavior of the speaker” (Skinner, 1957, p.2).
- Language is viewed from the strict constructs of behaviorism, where a stimulus produces a response which in turn produces a consequence (Sr + R + C).
- Skinner’s focus was on the functional control of the verbal behavior as opposed to the form, use, and content of communication.
Cognitive/Semantic (Bloom, 1970)
- A child's knowledge base comes from experiences and they begin to talk about what they know.
- Children then begin to map the form and function of their language based on their experiences.

Constructivist/Social (Vygotsky, 1962)
- Social Development Theory argues that social interaction precedes development; consciousness and cognition are the end product of socialization and social behavior.
- Vygotsky focused on the connections between people and the sociocultural context in which they act and interact in shared experiences.
- Also known for zones of proximal development.

Psycholinguistic/Syntactic (Chomsky, 1957)
- Brain is “pre-wired” for language and readily available to apply a set of rules to the particular language a child is exposed to.
- Language acquisition device – children are born with the “device” they need to acquire language.
- Current research (2016) questioning validity of theory.

Pragmatic Approach (Bruner, 1974)
- Development of language from a social context.
- Bruner indicated that relationships and social interactions are the motivation for a child to acquire language.

Survey Results: What does it all mean?

<table>
<thead>
<tr>
<th>Theory</th>
<th>SLPs (n=100)</th>
<th>BAs (n=34)</th>
<th>SLP-BCBAs (n=113)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral Approach (Skinner)</td>
<td>14%</td>
<td>97%</td>
<td>77%</td>
</tr>
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<td>Cognitive/Semantic (Bloom)</td>
<td>41%</td>
<td>3%</td>
<td>15%</td>
</tr>
<tr>
<td>Constructivist/Social (Vygotsky)</td>
<td>10%</td>
<td>3%</td>
<td>8%</td>
</tr>
<tr>
<td>Psycholinguistic/Syntactic (Chomsky)</td>
<td>15%</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>Pragmatic Approach (Bruner)</td>
<td>13%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Theoretical Differences
- **Nature**
  - Chomsky
- **Nurture**
  - Skinner
  - Bruner
- **Both Nature & Nurture**
  - Vygotsky
  - Bloom
Everyone Just Take a Deep Breath & Play Nice

GOAL: To serve individuals with autism!

A quick overview …

FCT

PRT

ESDM

VB

Functional Communication Training (FCT)

• Based on the idea that problem behavior(s) may function as a means for communicating
  1. IF a challenging behavior has a particular communicative function
  2. THEN we can teach a socially acceptable means (communication of some type!) of achieving the same function

• Both SLPs and BCBA implement FCT
  • Terminology and data tracking may be different

Steps to FCT:

• Teachers/practitioners identify:
  • An inappropriate behavior (e.g., hitting, grunting, falling to the floor) that is serving some type of communicative function and that is being reinforced (perhaps unknowingly) so that it occurs on a regular basis, or
  • A subtle communicative attempt that can be replaced with a more socially accepted form of communication.

Common Reasons/Functions

• Communication
• Avoidance
• Attention
• Fear
• Boredom
• Transitions
• Sensory

KEY — You must know the function of the behavior before you will EVER be able to change or manipulate the behavior!

WARNING

ACRONYMS AHEAD

SGDs

PECS

JASPER

KEY

These are common — but not the only reasons! Many people stop here!
STEP 1: Identify the Target Behavior

STEP 2: Functional Behavior Analysis

- Operationally define the target behavior
  - Observable & Measurable
- Take Data
  - Track the target behavior
    - When does it occur?
    - How long does it last?
    - How long between target behaviors?
    - How intense is the target behavior?
- Look for a Pattern
  - What happened right before the behavior occurred?
    - Antecedent
  - How did you respond?
    - Consequence

Step 3. Identify the Replacement Behavior

- Choose a replacement behavior that is **efficient & effective**
  - The replacement behavior should be simple enough to:
    - Be taught in a short amount of time; and
  
- Allow the learner to quickly acquire the behavior and gain access to the reinforcement.
- Teachers/practitioners identify a replacement behavior that is acceptable and appropriate for both the environment and the learner.
- Choose a replacement behavior that is recognized by multiple communicative partners.

To Teach Replacement Behaviors

- Teach a **functionally equivalent behavior**
  - It must help them get the same thing or it is not a replacement behavior! It can’t be a new skill you hope they will pick up on!
- Follow through consistently across all settings
- Provide opportunities to practice the new behavior
- Make the replacement behavior more **EFFICIENT & more EFFECTIVE** than the problem behavior
  - Or it won’t work!!!!
  - (e.g. Suzy and math worksheets!)

Choosing & Learning to Protest:

Ineffective Strategies, What NOT to do...

<table>
<thead>
<tr>
<th>Function</th>
<th>Ineffective Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid a Task</td>
<td>Time – Out/ Removal</td>
</tr>
<tr>
<td>Escape a Task</td>
<td>Time – Out/ Removal</td>
</tr>
<tr>
<td>Gain Attention</td>
<td>Verbally Reprimand</td>
</tr>
<tr>
<td>Escape a Tangible</td>
<td>Replacing Over Object</td>
</tr>
</tbody>
</table>

Step 4. Track the Data

- Antecedents
  - Prompts required to produce the replacement behavior
- Frequency of the replacement behaviors
- Frequency of the interfering behaviors
- Consequences of the behavior
Step 5. Create Environments for Success

- Think about ANTECEDENTS!!!
- Where does it occur?
- Are there visual supports you can create?
- Do you need special reinforcers?

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Step 6. Prompt for Success

- Full Physical Prompt
- Partial Physical Prompt
- Model Prompt/Verbal Prompt
- Direction
- Comment
- Time Delay

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Step 7. Reinforcement

- Reinforce the correct behavior
  - Immediate
  - Naturalistic
  - Often
- DO NOT reinforce the incorrect behavior
  - Remember, it may get worse before it gets better
  - Extinction Burst

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One type of FCT:

Common Replacement Strategies for Functional Communication:

<table>
<thead>
<tr>
<th>SLPs</th>
<th>BCBAs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picture Exchange Communication System (PECS)</td>
<td>Picture Exchange Communication System (PECS)</td>
</tr>
<tr>
<td>Sign</td>
<td>Verbal Language</td>
</tr>
<tr>
<td>Gestures</td>
<td></td>
</tr>
<tr>
<td>Verbal Language</td>
<td></td>
</tr>
</tbody>
</table>

Example: You have a 5-year-old client who is trying to gain access to his favorite crackers by crying and screaming. You talk with his parents about several options to change this behavior. Choose the option below that you think provides the BEST option. (Choose all that you would consider)

<table>
<thead>
<tr>
<th>Option</th>
<th>SLP (n=100)</th>
<th>BA (n=34)</th>
<th>SLP-BCBA (n=13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teach the child to sign &quot;more&quot;</td>
<td>42 (42%)</td>
<td>6 (18%)</td>
<td>3 (23%)</td>
</tr>
<tr>
<td>Teach the parents to ignore the child when he cries for crackers</td>
<td>6 (6%)</td>
<td>14 (41%)</td>
<td>3 (23%)</td>
</tr>
<tr>
<td>Use a differential reinforcement procedure</td>
<td>28 (28%)</td>
<td>28 (82%)</td>
<td>7 (54%)</td>
</tr>
<tr>
<td>Picture Exchange Communication System</td>
<td>81 (81%)</td>
<td>21 (60%)</td>
<td>9 (69%)</td>
</tr>
<tr>
<td>Remove the crackers from the house</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>None of the above</td>
<td>3 (3%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>16 (16%)</td>
<td>11 (32%)</td>
<td>3 (23%)</td>
</tr>
</tbody>
</table>

(Cardon, 2017)
Scenario #3: A six-year-old child on your caseload is struggling to learn the steps of the morning routine at his new school. To assist him in learning the routine, choose what you would determine to be the most effective and efficient treatment plan from those listed (Choose the best answer):

Answer:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>SLP (n=100)</th>
<th>BA (n=34)</th>
<th>SLP-BCBA (n=13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Model of Routine</td>
<td>25 (25%)</td>
<td>10 (30%)</td>
<td>2 (15%)</td>
</tr>
<tr>
<td>Written task analysis</td>
<td>4 (4%)</td>
<td>9 (26%)</td>
<td>2 (15%)</td>
</tr>
<tr>
<td>Picture schedule</td>
<td>90 (90%)</td>
<td>24 (71%)</td>
<td>8 (62%)</td>
</tr>
<tr>
<td>Social Story</td>
<td>2 (2%)</td>
<td>7 (21%)</td>
<td>1 (8%)</td>
</tr>
<tr>
<td>Premack Principle</td>
<td>2 (2%)</td>
<td>7 (21%)</td>
<td>1 (8%)</td>
</tr>
<tr>
<td>Physical Prompt</td>
<td>0 (0%)</td>
<td>6 (18%)</td>
<td>2 (15%)</td>
</tr>
<tr>
<td>Self Management</td>
<td>2 (2%)</td>
<td>3 (9%)</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>1 (1%)</td>
<td>5 (15%)</td>
<td>0</td>
</tr>
</tbody>
</table>

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American Speech-Language-Hearing Association (ASHA):

- SLPs are responsible for "consulting and collaborating with other professionals, family members, caregivers, and others to facilitate program development and to provide supervision, evaluation, and/or expert testimony, as appropriate." (Practice Portal, 2016)
- SLPs are charged to "share responsibility with other professionals for creating a collaborative culture. Collaboration requires joint communication and shared decision making among all members of the team, including the individual and family, to accomplish improved service delivery and functional outcomes for the individuals served." (Scope of Practice, 2016)

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Behavior Analyst Certification Board

- 2.03 Consultation.
- (a) Behavior analysts arrange for appropriate consultations and referrals based principally on the best interests of their clients, with appropriate consent, and subject to other relevant considerations, including applicable law and contractual obligations.
- (b) When indicated and professionally appropriate, behavior analysts cooperate with other professionals, in a manner that is consistent with the philosophical assumptions and principles of behavior analysis, in order to effectively and appropriately serve their clients.

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Pivotal Response Treatments

- The Koegel’s
  - Bob = Behavior Analyst
  - Lynn = Speech Language Pathologist
- Together = AWESOME!!!

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PRT (Koegel & Koegel)

- PRT is a behavioral approach that includes a child’s caregiver in a natural setting using motivational procedures
- Research behind PRT indicates that if certain pivotal skills are taught to a child, learning those pivotal skills will affect other areas of a child’s development
- PRT is one strategy that has been successfully used to teach many children with autism to use verbal communication

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PRT Components

- Clinician should:
  - Be clear, uninterrupted, and appropriate to tasks
  - Be interspersed with maintenance tasks
  - Include child-choice
  - Include multiple components when appropriate
- Reinforcement should:
  - Be contingent upon behavior
  - Follow any reasonable attempt to respond
  - Be related to desired behavior in a direct way

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How does PRT work?

Step 1: Natural Environment & Caregivers
- The environment should be arranged to increase a child's opportunities for communication.
- Caregivers should be a part of intervention!
  - How can you make this a reality in your setting?

Step 2: Motivation
- Child choice should start the interaction!
- A child must be motivated enough to continue trying to get the object or activity.
- Talking is not easy and the child must be willing to persist!

Step 3: Instruction & Response
- Instruction should be delivered clearly while the child is attending to the task.
- The child's response should be clear, directed and appropriate to the task.
- Be sure you do not reinforce "behaviors" that you do not mean to be reinforcing.

Step 4: Maintenance Tasks
- Because talking is hard, be sure to intersperse new tasks with something the child is really good at and already knows how to do.
- Think of an 80/20 or 70/30 rule. 70-80% of the time work on new tasks (like talking) and 20-30% of the time let the child do something they have already mastered!

Step 5: Contingency
- If the child produces a vocalization, then the child gets the object or activity.
- Be sure to be consistent once you have set up the opportunity.
- If you set it up, then you must follow through or the child will learn that there are exceptions to the rule.

Step 6: Reinforce Attempts
- Reasonable attempts should IMMEDIATELY be reinforced.
- A reasonable attempt initially is any sound that is directed and related to the task.
- As vocalizations become more consistent, different sounds and words become the focus.
Step 7: Direct & Natural Reinforcers

- Reinforcement should be directly and functionally related.
- If a child is interested in a ball, share control of the ball and use it as the direct and natural reinforcer.
- When the child verbalizes a reasonable attempt, reinforce the child with the ball!

Some important questions to ask when working on first words are:

1. Do I have the child’s attention?
2. Am I using clear, short direct instructions?
3. Am I following the child’s lead or choice of activity?
4. Am I giving a mixture of already learned and still to be learned tasks?
5. Am I reinforcing/rewarding good trying?
6. Am I reinforcing/rewarding with a built-in, natural reward – one that the child is asking for?
7. Am I reinforcing/rewarding RIGHT away?

PRT in action!

<table>
<thead>
<tr>
<th>PRT vs. DTT</th>
<th>Both are ABA based, but...</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DTT</strong></td>
<td><strong>PRT</strong></td>
</tr>
<tr>
<td>Breaks into smaller parts</td>
<td>Naturalistic opportunities</td>
</tr>
<tr>
<td>Teaches 1 sub-skill at a time</td>
<td>Multiple-care, multiple skills</td>
</tr>
<tr>
<td>Artificial reinforcement</td>
<td>Tool-specific reinforcement</td>
</tr>
<tr>
<td>Prompt fading and shaping</td>
<td>Prompt fading and shaping</td>
</tr>
<tr>
<td>Miss-taught</td>
<td>Increases natural reinforcement repertoires</td>
</tr>
<tr>
<td>Generalization after mastery</td>
<td>Generalization at onset and throughout</td>
</tr>
<tr>
<td>Therapist directed</td>
<td>Child directed</td>
</tr>
</tbody>
</table>

Biggest differences between SLPS & BCBAs

- Assessments
  - VBMAPP vs. Language Assessments
  - VBMAPP vs. Articulation & Motor Planning Assessments

- Implementation
  - Science of contingencies & reinforcement

- Data Collection
  - Single Subject Designs regular part of BCBA protocol

Scenario #6a: A four-year-old child that you are working with is very hard to understand. They pronounce multiple words incorrectly. The child can imitate sounds in isolation when you work with them, but when they try to say complete words and sentences, the sound errors return. What would you do to evaluate the child’s sound errors? (Choose all that you would consider)

<table>
<thead>
<tr>
<th>Method</th>
<th>SLPs (n=100)</th>
<th>BCBAs (n=34)</th>
<th>SLPs-BCBAs (n=13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VBMAPP</td>
<td>1 (1%)</td>
<td>16 (47%)</td>
<td>0</td>
</tr>
<tr>
<td>Goldman-Fristoe</td>
<td>71 (71%)</td>
<td>0</td>
<td>10 (77%)</td>
</tr>
<tr>
<td>Language Sample</td>
<td>67 (67%)</td>
<td>10 (29%)</td>
<td>9 (69%)</td>
</tr>
<tr>
<td>Phonological Ages Length of Utterance</td>
<td>16 (15%)</td>
<td>5 (15%)</td>
<td>3 (23%)</td>
</tr>
<tr>
<td>Kaufman Speech Praxis Test</td>
<td>19 (39%)</td>
<td>6 (18%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (1%)</td>
<td>18 (53%)</td>
<td>0</td>
</tr>
</tbody>
</table>

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Example: A 10-year-old on your caseload has started spitting. Mom reports he is spitting at home “all the time”, and his classroom teacher confirms that she has noticed an increase in his spitting at school. What would you do to evaluate the new spitting behavior? Check all that apply.

**Answer:**
1. SLP (n=100)
2. BA (n=34)
3. SLP-BCBA (n=13)

- Conduct a descriptive, Functional Behavior Analysis (69 [69%], 90 [69%], 11 [90%])
- Ask the teacher to document when he spits (62 [62%], 23 [68%], 9 [69%])
- Conduct an Experimental functional analysis (5 [5%], 17 [50%], 5 [38%])
- Observe the client in multiple environments for 15 minutes at a time (58 [58%], 19 [56%], 9 [69%])
- Implement a time out procedure (3 [3%], 0, 0)
- Refer to another practitioner (17 [17%], 1 [3%], 1 [8%])
- Other (9 [9%], 2 [6%], 1 [8%])

(Tardone, 2017)

1. Create opportunities
2. Motivation
3. Make yourself a valid part of the interaction
4. Multiple opportunities across multiple contexts
5. Make it visual
6. Pair verbal with a speech-generating device
7. Create communication environments
8. Early, early, early!
9. Intensive
10. Consult

Ten things you can do **right now** to help a child with autism communicate:

1. Create opportunities
2. Motivation
3. Make yourself a valid part of the interaction
4. Multiple opportunities across multiple contexts
5. Make it visual
6. Pair verbal with a speech-generating device
7. Create communication environments
8. Early, early, early!
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10. Consult

To support communication development:
- Avoid anticipating needs – turn off your HELPER instincts!
- Give them a reason to communicate!
- STOP talking and asking so many questions!

**How do I discover what motivates my client?**
- The art of OBSERVATION!
  - Watch at their level to observe what they are REALLY interested in doing
  - Remember that sensory components may be at work here
- What they do when the play alone
- What interests them
- Let them take the lead
- Give your client some control

**Motivation**

**MOTIVATION**

Some days it’s hard to find motivation...

...some days motivation finds you!
Preference Assessments!
• Formal and informal ways to determine what is motivating!

3. Make yourself a valid part of the interaction when possible
• Follow your client’s lead and join in the activity -
  • Imitate what your client is doing
  • Add something new to the activity
  • Reciprocal Imitation Training
  • Create predictable turns
  • Turn the activity into an interaction!
• Parts vs. Wholes
  • Find activities that have a lot of different parts
  • Shared control
• Creative Stupidity
  • Forget key items
  • Be silly
• Batteries Required
  • And so are you!

What if my client’s interests are “different”?
• Again - think sensory!
• Your client’s “play” skills may be atypical because they are not sure what else to do!
• Remember imitate them and add something new!
• Your client may take notice of you in a VERY different way!

When should you NOT follow your client’s lead?

4. Multiple opportunities across multiple contexts

5. Make it Visual - Make it Clear!
• “Let’s go to the Park!”

6. Pair verbal with a speech generating device
Communication Interventions for Minimally Verbal Children With Autism: A Sequential Multiple Assignment Randomized Trial
• Children who began intervention with SGD integrated into NBDI produced more spontaneous communicative utterances than children who started with NBDI and spoken language only
• Children showed increases in spontaneous communication, including different types of words and functions beyond requesting
• Adults were contingently responsive to a child attempts at communication and provided expansion of language through models that matched the child’s communicative intent
7. Create communication environments

Give them a reason to communicate!

8. Early, early, early!

- Gaps in development are less pronounced
- Neuroplasticity
- Begin appropriate intervention early to minimize/close the gaps
- Screening – MCHAT
  - https://www.m-chat.org/
- Refer for assessment

9. Intensive – Increased hours of engagement!
(30-ish hours that are intentional!)

- Siblings
- School
- Grandparents
- Social skills groups

10. Consult

- Language
- Motor planning
- FBA
- ABA based intervention
- Health issues
- Medication
- Peers
- Curriculum

Clearly, this is not an exhaustive list!

For every discipline . . . Evidence Based Practice!

Unless you’re using evidence-based procedures, I can’t hear a word you’re saying.

Thank you
Any questions?