Applied Behavior Analysis: An Overview & Application to Autism

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Today’s Agenda

• What is ABA?
• ABA & the Treatment of Autism
• Case Study: Progress during Early Intervention
• Applications to Practice
• Questions
What is ABA?
What is ABA?

- Applied Behavior Analysis (ABA) is the science of behavior change (learning).

- Relationships between behavior and our environment govern behavioral changes in all of us every day – this is learning!

- Basic principles of behavior/learning help us to teach new skills and decrease challenging behaviors
  - Ex: a person is likely to repeat a behavior that is followed by a positive outcome.

- ABA principles can be used intentionally to create learning or decrease unwanted behaviors
  - This is how these principles are used in the treatment of ASD.
“Applied Behavior Analysis is the process of systematically applying interventions based upon the principles of learning theory to improve socially significant behaviors to a meaningful degree, and to demonstrate that the interventions employed are responsible for the improvement in behavior.”

Cooper, Heron and Heward (2009)
ABA Definition: Autism Specific

- Applied behavior analysis (ABA) assists children and their families in improving the core symptoms associated with autism spectrum disorders or other developmental disabilities.

- ABA services support learning, skill development, and assistance in any of the following areas or domains: social, communication, play, behavior, adaptive, motor, or cognitive.
ABA & the Treatment of Autism
The Process of ABA

1. Assess & identify target behaviors
2. Evaluate data & make modifications as needed
3. Develop goals and objectives
4. Collect data to determine effectiveness of treatment
5. Design & implement interventions
Assessment

- **Family Interview:**
  - Establish parent/caregiver training goals
  - Obtain information on:
    - Skills related to communication, adaptive, social & behavior
    - School, family, & medical history

- **Skills-based Assessment:**
  - Assessment, Evaluation, and Programming System for Infants & Children (AEPS)
  - Structured Lab Observation (SLO)
  - Verbal Behavior Milestones Assessment & Placement Program (VB-MAPP)

- **Functional Behavior Assessment:**
  - Initial baseline data collected and analyzed for all target behaviors during assessment and throughout treatment
### Examples of Commonly Taught Skills in Early Intervention

<table>
<thead>
<tr>
<th><strong>Communication:</strong></th>
<th><strong>Social:</strong></th>
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<tbody>
<tr>
<td>Requesting for preferred items</td>
<td>Initiating greetings</td>
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<tr>
<td>Asking for help</td>
<td>Sharing and turn taking</td>
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<td>Saying all done</td>
<td>Gaining attention</td>
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<tr>
<th><strong>Adaptive:</strong></th>
<th><strong>Cognitive:</strong></th>
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<td>Toileting routine</td>
<td>Imitation</td>
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<td>Hand washing routine</td>
<td>Matching</td>
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<td>Dressing</td>
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<th><strong>Behavioral:</strong></th>
<th><strong>Play:</strong></th>
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<tr>
<td>Waiting</td>
<td>Toy &amp; Activity Exposure</td>
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<td>Handling frustration</td>
<td>Play Sequences</td>
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<td>Compliance and tolerance building</td>
<td>Functional, Representational, &amp; Imaginary Actions</td>
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<tr>
<td>Structured</td>
<td>Naturalistic</td>
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<td><strong>Instructor-led</strong>: controlled and paced by instructor, who presents opportunities to respond to individual learning trials</td>
<td><strong>Learner-initiated</strong>, usually by requests or gestures for preferred items</td>
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<td>Traditional training usually occurs in <strong>sit-down sessions</strong>, where the setting has been arranged to minimize distractions.</td>
<td>Takes place in the context of other activities, where the environment includes items of interest among naturally occurring materials</td>
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<td>Teaching materials are typically <strong>teacher-selected items</strong>, and reinforcers are often unrelated to teaching materials.</td>
<td>Materials used are <strong>learner-selected items</strong>, and contingent access to these items is used as reinforcement.</td>
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Structured Teaching Models

• **Key Characteristics:**
  • Skills broken down into smaller steps
  • Allows for repeated practice in a concentrated time period
  • Trials are not in a natural context and reinforcement is unrelated to task

• **Examples:**
  • Discrete Trial Teaching,
  • Lovaas Model
  • Direct Instruction
Structured Teaching Models

• **Advantages:**
  • Fast acquisition rates
  • Some individuals need more structure to learn
  • Structured data collection procedures facilitates close monitoring of progress

• **Drawbacks:**
  • Difficulty with generalization and/or maintenance
  • Potential increase in disruptive behavior
  • Not always developmentally appropriate
Naturalistic Teaching Models

• **Key Characteristics:**
  - Teaching is embedded in natural environment
  - Reinforcement is directly related to task
  - Incorporates a developmental perspective (e.g., is play based, within daily routines, child driven, etc.)

• **Examples:**
  - Pivotal Response Treatment (PRT)
  - Incidental Teaching
  - Project ImPact
  - Enhanced Milieu Teaching
  - Early Start Denver Model (ESDM)
  - Joint Attention Symbolic Play Emotion Regulation (JASPER)
Naturalistic Teaching Models

• **Advantages:**
  • Facilitates maintenance and generalization of skills
  • Allows child to remain in natural environment
  • More parent/caregiver involvement
  • Easier to adapt to developmentally appropriate activities

• **Drawbacks:**
  • Some children do not learn as well with less structure
  • Data collection may be more difficult in natural settings
Case Study: Progress in Early Intervention
Meet Caleb

- **Age:** 2 years, 4 months

- **Strengths:**
  - Beginning joint attention skills
  - Engagement with toys and activities
  - Compliance with directions if given prompts

- **Challenges:**
  - No consistent functional communication
  - Engages in tantrums when preferred items are removed
  - Poor comprehension of spoken language
Visual Analysis & Data-based Decision Making

Rate of Requesting vs Rate of Challenging Behavior

Session Date

Rate of Maladaptive Behavior

Rate of Spontaneous Verbal Behavior
Functional Communication Training

FCT: Requesting for Preferred Items

Current Items
1. Sustained Reach
2. Pointing
3. Pointing to Preferred vs. Non-preferred
4. Pointing to Make a Choice
Following Directions

Current Items
1. Clean up
2. Come here
3. Stop
4. Sit down
Sharing

**Current Items**
1. One of many
2. One of many (with neutral items)
3. One of many (generalized)
4. Single object
Applications to Clinical Practice
First Then Sequencing

- Uses the “Premack Principle” so that access to a preferred item/activity is contingent on the completion of a task

- Increases likelihood that the child will follow through with stated expectations
  - “First take temperature, then get toy”

- Keep your tasks small and manageable depending on your patient

- Visual supports can help increase comprehension of spoken contingency
Visual Supports

- Visual schedules help a learner better understand what is expected in a given moment and better anticipate changes
  - Ex: Sequence of appointment tasks
- Picture cards of common objects or activities to reference while communicating to the child
- Pictures to label items in the room
Language

- Often times, we may overuse language which can be confusing and overwhelming

- Use declarative statements instead of asking
  - Ex: “Time to take temperature” instead of, “Can I take your temperature?”

- Plus-1 Rule: If a child only speaks in one word utterances, then you should only use two
  - Example:
    - INSTEAD OF: “I need you to sit down so we can take your temperature and see how you’re feeling today.”
    - SAY: “Sit down” “Take temperature” etc.
Reinforcement

• Learn what motivates a child and use that to help them engage in behaviors you would like to see
  • Ask parents ahead of time what they like
  • Show child choices when they enter room

• Make access to preferred items contingent on your demands
  • “Come sit down, and then you can have the iPad.”

• Provide specific praise and social reinforcement
  • “You're doing a great job holding out your arm.”
  • “I’m so proud of how you are showing me a calm body.”
    • For children with less language → “Good calm body.”
Any questions?