Teaching Complex Skills to Facilitate Success After Early Intensive Behavioral Intervention

Linda A. LeBlanc, Ph.D.

Goals of EIBI

• Large improvements in language, social and repetitive behaviors
• Improvements in IQ and adaptive behavior
• Readiness for general education instruction
### EIBI Curricular Targets

<table>
<thead>
<tr>
<th>2-3 years</th>
<th>Compliance</th>
<th>Independent work and play</th>
<th>Conversation-Basic</th>
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<tbody>
<tr>
<td></td>
<td>Mand Training</td>
<td>Play Scripts</td>
<td>Yes/No</td>
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<tr>
<td>Block Imitation</td>
<td>Receptive Instructions</td>
<td>Receptive Labels</td>
<td>Joint Attention</td>
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<td>Receptive Labels</td>
<td>Assertiveness</td>
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<td>Matching</td>
<td>Functional communication</td>
<td>Sharing</td>
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<td>Play</td>
<td>Vocal imitation</td>
<td>Social Initiations</td>
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<td>Songs</td>
<td>Tacts</td>
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Are they ready?

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Group Instruction

“What animal lives in the jungle and has spots?”

Leopard

“Leopard”
“What animal lives in the jungle and has spots?”

Uhhh

“Leopard”

Based on prior learning

“Leopard”

“Uhuh”

“Great answer”

Avoid embarrassment?

Conditional Discrimination

Participants and Instructional Setting

• 3 boys with autism
• Served 25 hours/week in EIBI
• Extensive language and pre-academic skills
  – Mands, tacts, intraverbals, beginning math, language arts
• Did not raise a hand
Procedures and Design

- Multiple Baseline Design across progressively more difficulty tasks
  - Task 1: Possession of an item
  - Task 2: Did you just hear the secret word
  - Task 3: Do you know a fact***
    - Educationally relevant

Who has the . . .?

Who has the _(bear)_?
Who knows the secret word?

- Secret word is "Monkey"
- Good morning, Billy
- Good morning, Joey

Who knows . . .?

- Assessed individually for questions that only one child could answer

- First assessment - prior to baseline
  - 40 items from curriculum

- Second and third assessments – during treatment as needed
  - 15 new questions drawn from curriculum

Who knows . . . (what 2+2=)?

- Uhhh
- Uhhh
- 4 "4"
Session

- 27 trials - 9 trials of each task
  - 3 hands up, 6 hands down per child
- Dependent Measure
  - % of responses that were accurate across all children in the group for
    - All hands up trials
    - All hands down trials

Conditions

- Baseline
  - Question presented
  - “That was fun, let’s do another”
- Conditional Discrimination Training
  - Rule (2 x): “If you have it or know the answer, raise your hand, otherwise wait for another question”
  - Question presented, 5 s
  - Prompts if needed
  - Praise for correct hand raise, then correct hands down
  - Correction for errors if needed
Implications

- Critical readiness skill
  - know when you know; know when you don’t know
- Teach both responses
- Task 3 is cumbersome but you need it!

1. Critical instructions
2. Need help
3. Done
If you don’t know . . . ?

“Uhmm”

“What animal lives in the jungle and has spots?”

Complex Conditional Discriminations

Avoid embarrassment?

“2x – y = 47 Huhhh”

Get help

Teaching Reading

• Grades K-2: Learn to Read
• Grades 3-up: Read to Learn

Simultaneous

• Similarities
  – Incorporation of critical features of stimulus control
  – Targeting of each of the critical repertoires
  – High rates of reinforcement

• Differences
  • Form of responding
  • Automation of instruction (i.e., tech)
  • Number of sessions and duration of instruction
  • Specific response requirements
Comparative Questions

• Is one more effective than the other?
• Is one more efficient than the other on at least one important dimension?
  • Training required to produce implementation accuracy
  • Fewer trials/less time to criterion
  • Better generalization or maintenance
  • Lower rates of problem behavior

Participants

• Children in behavior analysis services provided at a center in Canada or Florida
  • Age range: 5 – 9.11 (avg = 7.9)
  • Gender: 19 males, 1 female
  • All diagnosed with Autism Spectrum Disorder
  • 16 Canada; 4 U.S.

Inclusion Criteria

• 1) A reading program is appropriate
• 2) Score at least an 8 on VB-MAPP echoic section OR is able to complete tasks E1-E12 in the vocal imitation section of the ABLLS-R
• 3) Moderate to good articulation
  – i.e., you can understand the majority of spoken language, only a few sounds are problematic
• 4) Can sit and attend for 10 - 15 minutes of work
• 5) Can follow 2-step instructions
Randomized Clinical Trial

Pretest DIBELS ORF (Avg of 5 testings): Match and RA

Posttest DIBELS (Avg of 5 testings)

- Completion of curriculum to matched coverage (40 episodes; lesson 87 RM)
- Up to 50 hours of instruction
- Discontinuation due to non-progress, problem behavior not responsive to intervention or discontinuation of services

Goals and Results

- Goal: At least 10-15 matched pairs to complete

- Current Status:
  - 10 matched pairs have started
    - RM: 0 have completed, 6 discharged, 3 failed, 1 in progress and looking good to meet 50 hours
    - 7 have completed: 2 discharged, 1 failed
- Intent to Treat Analysis

DIBELS ORF: Pre-Post Change
Revisions
- Mimio Headsprout
  - 3 had no revisions
  - 1 use of online flashcards
  - 3 teaching “not”
  - 1 teaching say it then click
  - 2 teaching not to click to close the program

Reading Mastery
- 3 children had no revisions
- 5 X token board due to problem behavior
- “say it slowly”
- “say it fast”
- First/next
- Blending

Other readiness skills
- Auditory conditional discriminations
  - Which one is NOT . . .
  - Find ANOTHER that . . .
- Find pertinent information
  - Reading comprehension
  - Research skills
- Test taking skills
  - Fill in circle completely
  - Don’t look at anyone else’s
  - Double check your work

Advanced Skill Sets
- Community Safety
- Instructional Readiness
- Personal Hygiene
Stranger Safety

- Abduction by strangers is rare but happens.
- Children with autism may be particularly susceptible to stranger persuasion.
- Behavioral skills training (BST) – IMRF
  - successfully used to teach children to decline abduction lures presented by strangers (Johnson et al., 2005)
  - generalization can be limited so must use “in situ” probes (e.g., Lumley, Miltnerberger, Long, Rapp, & Roberts, 1998).

Participants & Procedures

- 3 male children with autism about to enter public school
- Baseline Probes:
  - an unknown adult approached the child when he was alone in natural setting
  - adult presented 1 of 4 lures (i.e., simple, incentive, authority, and assistance request)

- BST:
  - verbal instructions, video modeling, live modeling, rehearsal with a stranger and familiar adults, praise, and corrective feedback
  - Don’t go, “NO”, run, tell adult

- Post-training:
  - repeat of baseline probes
  - if error, in situ corrective feedback
Complex Conditional Discriminations

Rule - Governed Responding

Teaching Street Crossing with VR-BST

Safe Street Crossing
- Always cross at crosswalk or intersection
- Stop at sidewalk – close but not too close
- Look both ways before you cross then back to the first
- Continue to look both ways as you cross and hurry but don’t run
Goldsmith (2007)

- 6 adolescents with ASD; IQ above 80
- All completed the protocol including performing to mastery in the VR platform at all levels of complexity
- Most still exhibited some degree of variability in the natural environment
  - Stimulus control problem, competing reinforcers
  - ALSO problem with crossing driveways
Teaching Pedestrian Safety

• Rule – “When you get to a driveway, look to see if a car is moving, then let me know if it is safe to cross.”
• Differential Reinforcement of Alternative Behaviors + Response Blocking:
  • “Looking”
  • Correctly saying, “Safe” or “Not safe”
  • Crossing completely and safely

Tokens and Praise

• Started with FR-1 Edible or Sticker
• Moved to Tokens with later trade in
• Social Praise

Parents and sister began implementation
Other Community Safety Skills

- Exiting safely during fire alarm
- Water safety around pools
- Seeking help when lost/separated
  - Hoch, Taylor & Rodriguez (2009)

Advanced Skill Sets

- Community Safety
- Instructional Readiness
- Personal Hygiene

Teaching Hygiene

- Benefits of teaching hygiene skills
  - Independence
  - Heightened community access and acceptance
  - Prevents illness
  - Eliminates need for assistance during private routines
  - Prevents unnecessary medical interventions
Teaching Feminine Care

- Richman, Reiss, Bauman, & Bailey (1984)
- 5 females
- Training package consisted of task analysis, differential reinforcement, and forward chaining
- All participants learned skills and maintained at 5 months follow-up

Current study

- Two female pre-teens with autism
- Nonconcurrent multiple baseline across participants
- Treatment package:
  - Total task chaining or Forward chaining
  - Prompting
  - Differential reinforcement

Task Analysis – Soiled Underwear

<table>
<thead>
<tr>
<th>Step</th>
<th>Task Description</th>
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<tbody>
<tr>
<td>1</td>
<td>Walks into the bathroom.</td>
</tr>
<tr>
<td>2</td>
<td>Pulls down underwear below knees and sits on toilet.</td>
</tr>
<tr>
<td>3</td>
<td>Removes soiled underwear.</td>
</tr>
<tr>
<td>4</td>
<td>Wipes vaginal area at least twice with toilet paper to remove residual blood and drops paper in toilet.</td>
</tr>
<tr>
<td>5</td>
<td>Washes hands. Removes clean underwear from basket.</td>
</tr>
<tr>
<td>6</td>
<td>Puts on clean underwear.</td>
</tr>
<tr>
<td>7</td>
<td>Removes sanitary napkin.</td>
</tr>
<tr>
<td>8</td>
<td>Opens clean sanitary napkin.</td>
</tr>
<tr>
<td>9</td>
<td>Disposes of outer covering in the trashcan.</td>
</tr>
<tr>
<td>10</td>
<td>Fastens sticky side of sanitary napkin lengthwise in underwear and presses into place.</td>
</tr>
<tr>
<td>11</td>
<td>Pulls up underwear and outer-clothes.</td>
</tr>
<tr>
<td>12</td>
<td>Flushes toilet.</td>
</tr>
<tr>
<td>13</td>
<td>Washes hands as in Step 5.</td>
</tr>
<tr>
<td>14</td>
<td>Holds soiled underwear by the waist band and puts in washing machine.</td>
</tr>
</tbody>
</table>
Task Analysis – Soiled Napkin

1. Walks into the bathroom.
2. Pulls down underwear below knees and sits on toilet.
3. Removes soiled sanitary napkin from underwear.
4. Wraps soiled sanitary napkin in toilet paper.
5. Disposes of sanitary napkin in the garbage can.
   Wipes vaginal area at least once with toilet paper to remove residual blood and drops paper in toilet.
6. Opens clean sanitary napkin from basket near the toilet.
7. Disposes of outer covering in the trashcan.
8. Fastens sticky side of sanitary napkin lengthwise in underwear and presses into place.
9. Pulls up underwear and outer-clothes.
10. Flushes toilet.
11. Washes hands.
12. Exits bathroom.

Task Analysis – Both

1. Walks into the bathroom.
2. Pulls down underwear below knees and sits on toilet.
3. Removes soiled sanitary napkin from underwear.
4. Wraps soiled sanitary napkin in toilet paper.
5. Disposes of sanitary napkin in the garbage can.
6. Removes Soiled Underwear.
7. Wipes vaginal area at least once with toilet paper to remove residual blood and drops paper in toilet.
8. Removes clean underwear from basket near the toilet.
9. Puts underwear on and pulls up to her knees.
10. Opens clean sanitary napkin from basket near the toilet.
11. Disposes of outer covering in the trashcan.
12. Fastens sticky side of sanitary napkin lengthwise in underwear and presses into place.
13. Pulls up underwear and outer-clothes.
14. Flushes toilet.
15. Washes hands.
16. Grabs underwear by the waistband and places it into the washing machine.
Summary: Core Skills

- Complex Conditional Discriminations
- Self-management and Problem Solving
- Rule-Governed Responding

Program for Success after EIBI

- Program for the next setting

Program for Success after EIBI

- Recognize that it’s complicated
  - target complex repertoires across domains

GO

NO GO
Program for Success after EIBI

• Great successes drive current curriculum needs!!!

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Linda A. LeBlanc

TRUMPET
BEHAVIORAL HEALTH

Move forward
Turn left
Look up
Move backward
Turn right
Look down
Systematic alteration

Steven: Trials Conducted in the Virtual Environment

Trish: Trials Conducted in the Virtual Environment

11 years old
GADS = 87
WASI: Verbal = 72; Full = 78

11 years old
GADS = 87
WASI: Verbal = 95; Full = 88
Other Impactful Factors

- What’s on the other side of the street?
- Complexity of the intersection