Using Discrete Trial Training (DTT) to Teach Children with Down Syndrome

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Introduction & Disclosure

Neither authors have financial or non-financial interest relevant to the topic of this presentation
Agenda

• Background on DTT
• DTT and DS Profile
• Pre-trial considerations
• Anatomy of a Teaching Trial
  • Emphasis on systematic prompt fading
• Skill Selection
• Programming for Generalization
• Assessing Generalization
My story as an SLP

WHAT YOU MEAN
YOU NOT GONE TEACH ME
DTT and the Down Syndrome Profile
DTT Overview

• A behavioral therapy that breaks learning into discrete trials
  • Sometimes called discrete trial teaching or discrete trial instruction
  • Applied Behavior Analysis (ABA) often used interchangeably with DTT

• Structured teaching method for:
  • Individualizing instruction
  • Simplifying instruction
  • Increasing access to learning opportunities

• Goal:
  • Teach children how to learn
  • Teach new skills

(Duker, Didden, & Sigafoos, 2004; Lerman, Valentino, & LeBlanc, 2016; Odom, Collet-Klingenber, Rogers, & Hatton, 2010; Smith, 2001)
Why children with DS?

• Overreliance on social strategies or problem behavior to avoid tasks
• Difficulty persisting with new or difficult tasks
• Intervening early and efficiently can maximize long term outcomes
  • Target areas of difficulty before they turn into pervasive issues

(Fidler, 2005; 2009)
DTT and the DS Profile

- Trial based teaching can provide extended practice with difficulties characterized by DS profile
  - Significant delays in language (Sigman & Ruskin, 1999)
    - **Massed trials accelerate language learning**
  - Limited task persistence with new or difficult tasks (Fidler et al., 2005)
    - **Systematically using adult prompts to promote independence and minimizing errors**
  - Resistance to adult prompts (Fidler et al., 2005)
    - **Reinforcement for responding to adults**
DTT Basics
What is DTT?

• A task instruction is given prior to each trial
• Prompts are identified prior to teaching trials
  • Selected based on type of skill being taught
• Consequences for each trial are provided contingent on the child’s response
• Reinforcement is provided for correct responding
• Sessions consist of multiple presentations of each trial
  • Systematic prompt fading is provided with each presentation of the trial
DTT Trial

Task Instruction
“What do you see?”

Adult Prompt
Gesture to SGD plus verbal “riding horse”

Child Response
Activates “riding horse” on SGD

Adult Consequence
Praise
Pre-trial Considerations

1) Identify a reinforcer

2) Identify a skill

3) Identify appropriate prompts
SO YOU THINK USING POSITIVE REINFORCEMENT WITH YOUR CHILD IS STUPID?

I HOPE YOUR BOSS JUST "EXPECTS" YOU TO DO YOUR JOB WITHOUT GETTING PAID.
Reinforcement: we all access it

- Reinforcer: any stimulus that increases the likelihood of a behavior occurring (Cooper, Heron, & Heward, 2006)
- Individualized
  - What motivates one child to respond may not motivate another child
  - Social v. tangible reinforcers
  - May provide a variety of reinforcement options within a session
- Teach increased task persistence, response to adult prompts
  - Promoting rapid skill acquisition
- Pacing
  - Quick
  - Don’t want to lose the child’s attention
MS. HOGG'S GONNA
GIVE ME A GOLD STAR

DID YOU SAY "THOSE REINFORCERS DON'T WORK"?

UH... THEN THEY AREN'T REINFORCERS!
Reinforcer considerations

• What items should I use?
  • Give access to items with differing qualities

• Does your child have a preference for certain items?
  • Do they like sensory activities?
    • shaving cream, sand, bubbles etc.
  • Do they have a preference for visual toys?
    • rocket balloons, light up toys
  • Do they like tangible items?
    • Squishy toys, light up balls, etc.

• Difficulty relinquishing items?
  • use items that you don’t have to take away
    • Bubbles, balloons, activation of a fun toy

• Evaluate frequently throughout session

For more info on assessing preferences go to:
http://vkc.mc.vanderbilt.edu/ebip/preference-assessments
Pre-trial Considerations

1) Identify a reinforcer

2) Identify a skill

3) Identify appropriate prompts
Example

**IEP Goal:** Uses 3-4 words to communicate a variety of functions in daily environment

**Skills:**
Present Progressive
Present Progressive + Object
Subject + Present Progressive + Object

**DTT Goal:** Expressively labels present progressive actions

**Start teaching:** Expressively labels present progressive action “pouring” in a picture
**Next:** “blowing”, “drinking”, “eating”, “opening”, “playing”, etc.
Thinking about Generalization

• Generalization starts when you start teaching trials
  • Goal is to teach the child how to use the correct grammatical structure
  • Teach multiple verbs so the child learns the pattern of the grammatical rule
  • Over time children learn to generalize this pattern to verbs not directly taught in sessions
    • You may have to teach three actions before they start to apply the rule themselves
    • The number of examples you have to teach will vary by child
    • Number of prompts before independent response may indicate when a child has generalized
Pre-trial Considerations

1) Identify a reinforcer

2) Identify a skill

3) Identify appropriate prompts
Prompting

• Adult support for the purpose of achieving a correct response from the child

• Use prompting hierarchy
  • Minimize errors
  • Provides children with a high rate of success
  • Allows for a plan for systematically fading the level of support provided to the child to obtain a correct answer
Prompting

• The prompts that are chosen will be contingent on the skill being taught

• Matching/Receptive Language
  • Full physical, partial physical, positional, gesture

• Expressive Language
  • Verbal model, partial verbal model, written word, gesture (if aac modality)
Example

**Skill:** Expressive labeling of the present progressive action “pouring” in a picture

**Prompt selection:**
- **Teaching Prompt:** Adult says: “Pouring”
- **Prompt Fading:** Adult says: “Pour”
- **Time Delay:** Adult waits 5 seconds for the child to respond after providing task direction
Anatomy of a Trial
Conducting a trial

1) Secure Attention

2) Task Direction

2) Prompt

3) Child Response

4) Adult Consequence

5) Inter-trial Interval
Securing Attention

- Make sure child is attending before you present the task direction
  - Wait
    - Until child attends on their own
  - Use gestures
    - Point to materials
  - Can use behavioral momentum
    - High fives
    - Motor imitation
Conducting a trial

1) Secure Attention

2) Task Direction

2) Prompt

3) Child Response

4) Adult Consequence

5) Inter-trial Interval
Delivering the task direction

• Keep it short and clear
  • ”What is it?”
  • “Show me _____”
  • “Find ______”

• Give it only once
  • We are teaching kids that they have to respond
  • We aren’t begging them to answer us
  • If they aren’t answering, it’s likely they don’t know the answer so we’re going to prompt them through it
Conducting a trial

1) Secure Attention

2) Task Direction

2) Prompt

3) Child Response

4) Adult Consequence

5) Inter-trial Interval
Prompting

- Step One: Teaching Prompt
- Step Two: Prompt Fading
- Step Three: Time Delay
**Step One: Teaching**

- **Task Instruction** (w/ immediate prompt to ensure correct answer)

  - If NR or error
    - **Repeat Prompt**
      - If correct, reinforce and initiate new trial
      - If NR or error provide answer; problem solve and initiate new trial

*MASTERY: 2-5 consecutive correct responses at any given prompt level*
Step One: Teaching

Task Instruction (w/ immediate prompt to ensure correct answer)

If correct
- Reinforce
  - Repeat until mastery; move to step 2

If NR or error
- Repeat Prompt
  - If correct, reinforce and initiate new trial
  - If NR or error provide answer; problem solve and initiate new trial

*MASTERY: 2-5 consecutive correct responses at any given prompt level
Step Two: Prompt Fading

Task Instruction (w/ immediate less supportive prompt)

- If NR or error
  - Repeat Prompt
    - If correct, reinforce and initiate new trial
    - If NR or error provide answer; move back to step one

*MASTERY: 2-5 consecutive correct responses at any given prompt level
Step Two: Prompt Fading

Task Instruction (w/ immediate less supportive prompt)

If correct
- Reinforce
  - Repeat until mastery; move to step 3

If NR or error
- Repeat Prompt
  - If correct, reinforce and initiate new trial
  - If NR or error provide answer; move back to step one

*MASTERY: 2-5 consecutive correct responses at any given prompt level
Step Three: Introduce Time Delay

**Task Instruction**
(wait 5 seconds)

- **If NR or error**
  - Provide Prompt
    - **If correct, reinforce and initiate new trial**
    - **If NR or error provide answer; move back to step 2**

*MASTERY: 80% correct responding across two consecutive days*
Step Three: Introduce Time Delay

Task Instruction (wait 5 seconds)

- If correct:
  - Reinforce
    - Repeat until mastery; move to new example
  - Provide Prompt
    - If correct, reinforce and initiate new trial
    - If NR or error provide answer; move back to step 2

*MASTERY: 80% correct responding across two consecutive days*
Conducting a trial

1) Secure Attention

2) Task Direction

2) Prompt

3) Child Response

4) Adult Consequence

5) Inter-trial Interval
Conducting a trial

1) Secure Attention

2) Task Direction

2) Prompt

3) Child Response

4) Adult Consequence

5) Inter-trial Interval
Conducting a trial

1) Secure Attention

2) Task Direction

2) Prompt

3) Child Response

4) Adult Consequence

5) Inter-trial Interval
Inter-trial Interval

• Gives child chance to access reinforcement
• Gives the adult a chance to:
  • Reset materials
  • Take Data
  • Make decisions for the next trial based on flow chart
Sample Data Sheet

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<td>Materials: Picture of girl pouring</td>
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**Skill:** Pouring into a cup

**Teaching Prompt:** "Pouring"

**Fading Prompt:** "Pour"

**Data Collection:**
- + (Independent Correct)
- P+ (Prompted Correct)
- - (Error)

**Mastery Criteria:** Two consecutive sessions of at least 80% independent correct.

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**Reinforcers:** ball, bubbles, balloons

**Task Direction:** "What is she doing?"
Problem Solving

• Need to re-evaluate reinforcer frequently throughout the session
  • Provide frequent choices

• Make adjustments to reinforcement
  • If child is frequently not providing a response:
    • Think about bringing in new reinforcers
    • Reinforcing more frequently
    • Providing more choices within session
  • If child is frequently responding immediately:
    • Think about increasing number of trials between reinforcement
Problem Solving

• If your child is not responding consistently
  • Make sure you have identified a strong reinforcer

• Ask the child to complete a simpler task prior to initiating a new task
  • “Behavioral Momentum”
  • Examples: High five, motor imitation (tap table, clap hands, raise arms, etc.)
  • Once children are following through on directions, immediately present a trial with your new task

• Think about adding in one more prompt to your sequence
  • If you can’t move from your second prompt to your time delay

• Does your child need a precursor skill?
  • Do they know actions without grammatical markers?
Generalization

• Many dimensions of generalization
  • Can generalize to different:
    • materials
    • Settings
    • People

• Plan for generalization that is most functional for your child

• Plan ideas for generalization when you are selecting goals so that you have a long term plan for skill acquisition
Generalization

• Think about how to take your skill to a new context
  • You taught the child how to identify the present progressive action: pouring in a picture
  • Program a play session with materials that lend themselves to pouring
  • Implement the trial (probe) with a 5 second time delay to see if they have generalized to a new context
  • If they haven’t, teach it in a play based setting
In Summary

• Using DTT to:
  • Provide consistent attention for engaging in appropriate behavior
  • Teach children to persist with new and harder tasks
  • Teach rapid skill acquisition in language related domains

• Short-term Goals
  • Teach new skills
  • Minimize problem behavior
  • Increase appropriate behavior

• Long-term Goals
  • Teach children how to learn and how to *enjoy* learning
  • Generalization of skills and learning related behaviors to novel learning environments
Questions?

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References


