HOW TO DO DISCRETE TRIAL TRAINING: OVERVIEW OF THE NEW 2ND EDITION

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DISCRETE TRIAL TRAINING

- DTT is one component of many Applied Behavior Analysis (ABA) intervention methods.
- DTT is a scientifically researched teaching method that has been proven to show positive results for children and youth with autism spectrum disorder (ASD).
- It is a structured, yet flexible and versatile tool for instruction.
- Can be used in a 1:1, small group, large group teaching setting within the home, classroom or community
- To implement DTT appropriately and correctly, highly trained and competent behavior analysts need to create and supervise such the teaching program

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APPLIED BEHAVIOR ANALYSIS (ABA)

- A-B-C Paradigm
  - The three-term contingency: All applied behavior analysis procedures involve manipulation of one or more components of this three-term contingency.

A -	B -	C
Antecedent	Behavior	Consequence
The antecedent is the specific [stimulus] condition under which the behavior occurred.	The behavior that occurs in response to the antecedent.	The response that follows a behavior and affects the likelihood that it will occur again in the future. Consequences can increase behavior **(reinforcement)** or decrease behavior **(punishment)**.

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APPLIED BEHAVIOR ANALYSIS (ABA)

- The ABC Paradigm is a system of analyzing the cause and effect of behavior by recording the Antecedent, Behavior, and Consequence of each occurrence.
- Examples:
  1) A- "What is her name?"; B- "Joanne."; C- "Thanks."

  2) A- [Loud noise]; B- [child screams]; C- "Be quiet!"

  3) A- "Time to clean up your toys."; B- "NO!!" [throws toy]; C- [adult ignores child and walks away]

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DISCRETE TRIAL TRAINING

- Mirrors the A-B-C Paradigm
  - The three-term DTT contingency: This is the basic DTT structure used to teach new skills

S^D -	R -	S^R
Discriminative Stimulus	Response	Consequence
The instruction, question or relevant materials presented to the student (antecedent)	The student's response to the S^D (behavior)	The response provided by the instructor to the student based on the student's response (reinforcement) or decrease behavior (punishment).

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DISCRETE TRIAL TRAINING

- Using DTT as a teaching method involves the following:
  - Breaking a skill into smaller parts
  - Teaching each part to mastery
  - Providing concentrated (intensive) teaching
  - Providing prompting and fading as necessary
  - Using reinforcement procedures
- Each time an instructor has a teaching session with a student, there are a series of *trials*, each of which has a distinct beginning and end – making it *discrete*
- DTT is different than other teaching methods because it prescribes presenting a very small unit of information and immediately seeking the student's response – active student involvement – before moving on to another trial.

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DISCRETE TRIAL TRAINING

- In the DTT book the procedures for
  - Delivery of Instruction: Discriminative Stimulus
  - Obtaining the Correct Response
  - Providing Immediate Consequences and
  - Utilizing Inter-Trial Intervals (time and space between trials)
- are described in detail so that all professionals using and implementing DTT understand the intricacies of a trial and the need for consistency with delivering each trial.

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Figure 7. Overview of the discrete trial training (DTT) instructional method.
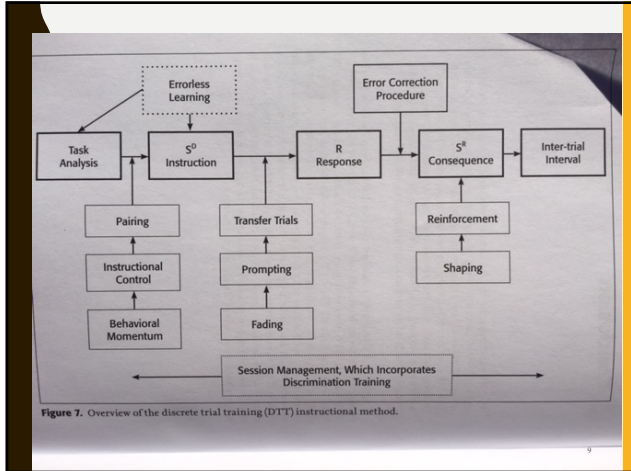
ABA METHODS

• PREVENTION AND BEING PROACTIVE

– Prevention of incorrect responses or inappropriate behaviors,

– Proactively teaching new skills or behaviors, and

– Changing factors before the response or behavior occurs in order to set the individual up for success

• When using DTT we make changes to the setting event (overall context) and to the antecedent (the instruction) so that the child

– 1. is able to correctly learn new skills,

– 2. is motivated to learn new skills and

– 3. will respond correctly

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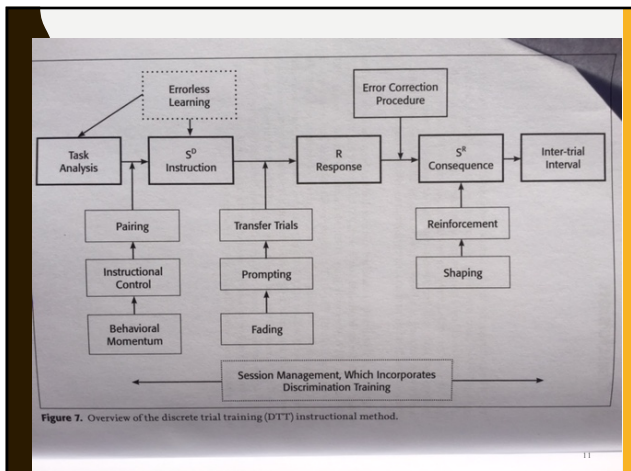
IMPLEMENTING DTT SUCCESSFULLY

• A structured teaching environment is essential for the successful use of DTT.

– Errorless Learning

– Task Analysis

– Reinforcement

– Pairing

– Instructional Control

– Behavioral Momentum

– Session Management

IMPLEMENTING DTT SUCCESSFULLY

- Prompting and Fading
- Shaping
- Chaining
- Error Correction Procedure
- Transfer Trials
- Token Economy Systems
- Discrimination Training

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IMPLEMENTING DTT SUCCESSFULLY

- The DTT 2nd edition provides the following for each of these teaching concepts, methods and procedures:
  - A definition
  - A detailed explanation of the concept and implementation of the necessary procedures
  - Examples of using the procedures with students with ASD
  - A "Practice Beginning Exercise" and/or "Practice Role-Play Scenario" for practicing the procedure
    - An observation/evaluation/checklist form to use to monitor the instructors skills with implementing that procedure
  - A "Quick Review" of the important concepts regarding that procedure

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IMPLEMENTING DTT SUCCESSFULLY

- Other information and methods and procedures provided in the 2nd DTT edition:
  - Assessing students to establish an overall DTT program (present level of student skills)
  - Creating and utilizing data-based decision-making within a DTT program
  - Utilizing performance evaluations of instructors who are implementing a DTT program

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ERRORLESS LEARNING

- Errorless Learning involves teaching new skills in a manner that minimizes the possibility of errors and thus increasing the possibility that the student will learn the skill successfully.
- Errorless learning
  - Minimizes the number of errors a student will make,
  - Increases the time available to the instructor to engage in teaching rather than correcting the student,
  - Reduces the likelihood that errors will be repeated in the future, and
  - Reduces the student's frustration and inappropriate behaviors by increasing opportunities for the student to be reinforced for correct responses.

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TASK ANALYSIS

- Task Analysis involves breaking a skill down into smaller parts and determining the individual steps that will be used to teach that skill.
- Task Analysis is a component of errorless learning because it provides the instructor the path he/she will take to teach the student the new skill in a way that the student can be successful.

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REINFORCEMENT

- One heavily researched and documented concept is that a student needs to be motivated in order to learn.
- Many students with ASD do not often have "internal" motivation to learn new skills or behaviors (i.e. not engaging in observational learning). Using ABA principals allows us to provide external motivating factors which assist us in teaching a student, with ASD, new skills and behaviors.
- Within the DTT process, reinforcement involves providing a consequence after a correct response that teaches the child what is the correct response and that he/she should provide that response again in the future when that same instruction is provided.
- Something is only a reinforcer if it is something the student wants (not what you think is or should be a reinforcer)
- There are many different types and strategies to implementing reinforcement (i.e. differential reinforcement)

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PAIRING

- Pairing is a one of the most effective proactive and preventative ABA processes
  - instructor establishes herself as a reinforcer by associating herself with other already existing reinforcers.
- Pairing is important because it establishes a foundation on which an instructor can build to teach students skills they need to learn. If students like to be with their instructors, they will be more motivated to do what is requested of them.
- Establishing rapport with a student will directly affect an instructor's ability to teach and the student's willingness and motivation to learn.
- If appropriate pairing has correctly taken place, the student will be more apt to view the instructor as a "giver of good things," which will positively affect the student's learning.

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INSTRUCTIONAL CONTROL

- Instructional control refers to the instructor creating a high probability of a child correctly responding to instructions – compliance.
- Establishing instructional control involves preparing a student *to respond correctly* to and *learn* from an instructor.
  - It also prepares the instructor to successfully teach the student.
- By pairing oneself with a child's reinforcers you motivate the student to give correct responses so that they get what they want. Thus, an instructor can establish a successful learning pattern for the student and thereby increase instructional control.
- There are two critical elements involved in establishing instructional control:
  - 1. the association of the instructor with the delivery of reinforcement (pairing) and
  - 2. having a student provide correct responses after receiving an instruction.

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BEHAVIORAL MOMENTUM

- Learning or doing something new is always more difficult than performing already mastered skills.
  - Thus, behavior analysts drew on the theory from physics that once something is already moving it is easier to keep it moving.
- Behavioral momentum basically means to build up momentum to what you really want the child to do (i.e a non-preferred task or activity or a difficult task)
- Present the student with several easy and mastered tasks at a higher pace before presenting the more difficult task.
  - Provide praise and/or small amounts of reinforcement for these easier previously-learned tasks
    - helps student feel successful by doing several easy things in quick succession
    - helps to motivate student to comply because they are getting a lot of reinforcement
    - AND the instructor is increasing the likelihood that the student will be willing to perform the more difficult task that is presented after the successive easy tasks.

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SESSION MANAGEMENT

- Session Management involves structuring the instruction and work time to maximize opportunities for student learning.
- Successful session management depends directly on the strength of the instructional control the instructor has with the student.
- Instructors' goal for a session is to create and implement a positive and fun learning experience for the student

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PROMPTING & FADING

- Prompting and Fading are crucial and integral parts of the DTT process – without *prompts* a student cannot learn a new skill and without *fading* prompts the student will not perform that skill independently.
- A prompt is a stimulus provided along with the instruction that aids the student in making a correct response
- Fading is the systematic withdrawal of prompts.
- There are a variety of different prompts involving more intrusive prompts (i.e. full physical prompt) to less intrusive prompts (i.e. pointing to something).
- Any time a student is having difficulty learning a new skill or behavior it is best to start with evaluating the prompting and fading procedures that are being used because this is often the point at which many instructors get stuck or implement the procedures incorrectly.

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SHAPING

- Shaping is developing a new behavior or skill by reinforcing closer and closer approximation of the desired behavior or skill. It is NOT Prompting.
- The instructor uses shaping to teach a skill that the child cannot and has not yet shown any ability to do (often physical tasks).
- The instructor allows the student to perform and receive reinforcement for performing an approximation of the skill while gradually increasing the requirement for the performance of the skill.
- Shaping is part of the consequence (reinforcing only the highest level of correct response).

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CHAINING

- Chaining is a result of task analysis – breaking a larger skill/task down into a series of smaller behaviors that occur in a specific sequence to accomplish the overall larger skill/task (i.e. washing hands, getting dressed)
- In chaining successive behaviors are reinforced in a sequential chain toward an end result of acquiring a complex skill – a behavior chain.
- Another important aspect of chaining is that each behavior in a specific behavior chain serves as a cue for the next behavior. This is helpful for students and can result in learning a behavior more quickly.
- When teaching a skill that involves chaining, instructors decide whether to use forward chaining or backward chaining.

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ERROR CORRECTION PROCEDURE

- The error correction procedure is a consequence for an incorrect response or failure to respond following the presentation of an instruction.
- It is a component of errorless learning because it strengthens the connection between the instruction and the correct response.
- Instead of simply telling the student they were incorrect and moving on to the next instruction, error correction involves using prompts and fading prompts to get the student to provide the correct response before moving on to other trials or tasks.
- There are several steps involved in an error correction procedure and it requires a lot of practice to become adept and utilizing it.

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TRANSFER TRIAL

- A transfer trial is a method of fading prompts or providing prompts that are less intrusive to help the student learn a new skill or perform a skill more independently.
- Transfer trials are the trials that an instructor uses to progress the student to a more difficult or independent response.
  - One trial is used a prompt to cue what the independent response should be when the instructor presents the next trial.

Transfer Trial (receptive ID of colors)
- S^D: (five colored objects on the table) "give me the red one"
- R: Student pick up and hands the red car to the instructor
- S^R: "That's right! That's the red one!"

New Skill Trial (expressive ID of colors)
- S^D: Instructor holds up the red car and says "What color is it?"
- R: Student says "Red."
- S^R: Instructor says "Yes! It is red! Give me five!!"

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TOKEN ECONOMY SYSTEMS

- For all individuals, it is important to work for longer periods of time before receiving reinforcement.
- Token economy systems are a reinforcement system that teach the child to delay acquisition of the primary reinforcer.
  - A secondary reinforcer is paired with the primary reinforcer so that the student can learn to enjoy other reinforces (i.e. praise, tokens) while seeing the progress they are making toward obtaining the primary reinforcer AND work for longer periods of time without interruption.
- Using token economy systems during the DTT process allows for more learning to occur, more natural learning to occur (i.e. incidental teaching)and learning in less intrusive settings (i.e general education classroom)

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DISCRIMINATION TRAINING

- Discrimination is a foundational skill that all people need in order to communicate with others, follow directions, label items, action and emotions, read, follow a schedule and learn self-care skills. It is a functional living skill or an adaptive behavior skill.
- Students with ASD have difficulty attending to and learning to discriminate between different items and similar items with different features.
- The instructor engages in a lot of pre-planning in order to teach and use DTT in a way that leads a student towards independence and generalization of skills, which can only occur through discrimination training.

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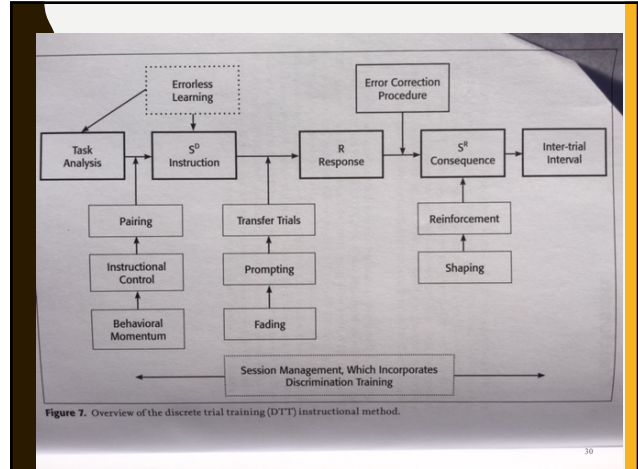
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CONCLUSIONS

- TWO important reasons to use DTT with students with ASD:
  - 1. Most students with ASD do not naturally gain information from their environment by observing and listening to others or modeling others' behaviors. The DTT method enables instructors to systematically analyze tasks that a student needs to learn, break them down into small defined steps, and systematically teach them to the student in incremental elements that she can more easily learn.
  - 2. DTT also enables teachers to be consistent in their instruction by clearly writing out the procedures for implementing a discrete trials and taking data on the student responses.

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