Module: Discrete Trial Training (DTT)

Evidence-Based Practice Brief: Discrete Trial Training (DTT)

This evidence-based practice brief on discrete trial teaching includes the following components:

1. **Overview, which gives a quick summary of salient features of the practice, including what it is, who it can be used with, what skills it has been used with, settings for instruction, and additional literature documenting its use in practice**
2. **Steps for Implementation, detailing how to implement the practice in a practitioner-friendly, step-by-step process**
3. **Implementation Checklist, to be used to monitor fidelity of the use of the practice**
4. **Evidence Base Summary, which details the NPDC-ASD criteria for inclusion as an evidence-based practice and the specific studies that meet the criteria for this practice**
5. **Discrete trial training data collection sheets**

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Overview of Discrete Trial Training

Bogin, J. (2008). *Overview of discrete trial training.* Sacramento, CA: National Professional Development Center on Autism Spectrum Disorders, M.I.N.D. Institute, The University of California at Davis Medical School.

Discrete trial training (DTT) is a one-to-one instructional approach used to teach skills in a planned, controlled, and systematic manner. DTT is used when a learner needs to learn a skill best taught in small repeated steps. Each trial or teaching opportunity has a definite beginning and end, thus the descriptor discrete trial. Within DTT, the use of antecedents and consequences is carefully planned and implemented. Positive praise and/or tangible rewards are used to reinforce desired skills or behaviors. Data collection is an important part of DTT and supports decision making by providing teachers/practitioners with information about beginning skill level, progress and challenges, skill acquisition and maintenance, and generalization of learned skills or behaviors.

Evidence

DTT meets the evidence-based practice criteria within the early childhood and elementary age groups for promoting the development of communication/language, adaptive behavior, cognitive/academic skills, social and play skills, and for reducing interfering behaviors.

With what ages is DTT effective?

DTT can be used to teach students from early childhood through elementary school at all ability levels. Due to the intensive and repetitive nature of DTT, there is more evidence for using DTT with younger children (i.e., 2 to 9 years of age).

What skills or intervention goals can be addressed by DTT?

DTT has been shown to have positive effects on children's academic, cognitive, communication/language, social, and behavioral skills. DTT can also be used to teach attending, imitation, and symbolic play skills.

Where has DTT been effectively used?

DTT can be taught in home, school, or community settings. Because discrete trials are often carried out in an intensive and repetitive fashion, quiet areas with limited distractions are often used.

Evidence Base

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The studies cited in this section document that this practice meets the NPDC on ASD's criteria for an evidence-based practice. This list is not exhaustive; other quality studies may exist that were not included.

Preschool

Cohen, H., Amerine-Dickens, M., & Smith, T. (2006). Early intensive behavioral treatment: Replication of the UCLA model in a community setting. *Journal of Developmental and Behavioral Pediatrics*, *27*(2), 145-155.

Howard, J. S., Sparkman, C. R., Cohen, H. G., Green, G., & Stanislaw, H. (2005). A comparison of intensive behavior analytic and eclectic treatments for young children with autism. *Research in Developmental Disabilities, 26*(4), 359-383.

Remington, B., Hastings, R.P., Kovshoff, H., Degli Espinosa, F., Jahr, E., Brown T., et al. (2007). Early intensive behavioral intervention: Outcomes for children with autism and their parents after two years. *American Journal on Mental Retardation, 112*(6), 418-438.

Smith, T., Groen, A., & Wynn, J. W. (2000). Randomized trial of intensive early intervention for children with pervasive developmental disorder. *American Journal on Mental Retardation, 105*(4), 269-285.

Whalen, C., & Schreibman, L. (2003). Joint attention training for children with autism using behavior modification procedures. *Journal of Child Psychology & Psychiatry*, *44*(3), 456-468.

Elementary

Dib, N., & Sturmey, P. (2007). Reducing student stereotypy by improving teachers' implementation of discrete-trial teaching. *Journal of Applied Behavior Analysis, 40*(2), 339-343.

Eikeseth, S., Smith, T., Jahr, E., & Eldevik, S. (2002). Intensive behavioral treatment at school for 4-7 year-old children with autism. *Behavior Modification*. *26*(1), 49-68.

Lovaas, O. I. (1987). Behavioral treatment and normal educational and intellectual functioning in young autistic children. *Journal of Consulting and Clinical Psychology. 55*, 3-9.

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McEachin, J. J., Smith, T., & Lovaas, O. I. (1993). Long-term outcomes for children with autism who received early intensive behavioral treatment. *American Journal on Mental Retardation, 97*(4), 359-372.

Selected Additional References

Eikeseth, S., Smith, T., Jahr, E., & Eldevik, S. (2007). Outcomes for children with autism who began intensive behavioral treatment between ages 4 and 7: A comparison controlled study. *Behavior Modification*, *31*(3), 264-278.

Leaf, R., & McEachin J. (1999). *A work in progress.* New York, NY: Autism Partnership

Lovaas, O. I., & Smith, T. (1989). A comprehensive behavioral theory of autistic children: Paradigm for research and treatment. *Journal of Behavior Therapy and Experimental Psychiatry, 20*, 17-29

Lovaas, O. I., Schreibman, L., Koegel, R., & Rehm, R. (1971). Selective responding by autistic children to multiple sensory input. *Journal of Abnormal Psychology, 77*(*3*), 211-222.

Lovaas, O. I., Ackerman, A. B., Alexander, D., Firestone, P., Perkins, J., & Young, D. (1981). *Teaching developmentally disabled children: The ME book.* Austin, TX: Pro-Ed.

Lovaas, O. I., Koegel, R., Simmons, J., & Long, J.S. (1973). Some generalization and follow-up measures on autistic children in behavior therapy. *Journal of Applied Behavior Analysis*. *6*(1), 131-166.

Lovaas, O I., Schreibman, L., & Koegel, R. (1974). A behavior modification approach to the treatment of autistic children. *Journal of Autism and Childhood Schizophrenia, 4*(2), 111-129.

Matson, J., Benavidez, D., Compton, L. S., Paclawskyj, T., & Baglio, C. (1996). Behavioral treatment of autistic persons: A review of research from 1980 to the present. *Research in Developmental Disabilities*, *17*(6), 433-465.

Maurice, C. (1993). *Let me hear your voice.* NY: Knopf.

Smith, T. (1999). Outcome of early intervention for children with autism. *Clinical Psychology: Science and Practice, 6*(1), 33-49.

Taylor, B. A., & McDonough, K. A. (1996). Selecting teaching programs. In C. Maurice, G. Green, & S. C. Luce (Eds.). *Behavioral intervention for young children with autism: A manual for parents and professionals* (pp. 63-177). Autism, TX: Pro Ed.

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Evidence Base for Discrete Trial Training

The National Professional Development Center on ASD has adopted the following definition of evidence-based practices.

To be considered an evidence-based practice for individuals with ASD, efficacy must be established through peer-reviewed research in scientific journals using:

- *randomized or quasi-experimental design studies.* Two high quality experimental or quasi-experimental group design studies,
- *single-subject design studies.* Three different investigators or research groups must have conducted five high quality single subject design studies, or
- *combination of evidence.* One high quality randomized or quasi-experimental group design study and three high quality single subject design studies conducted by at least three different investigators or research groups (across the group and single subject design studies).

High quality randomized or quasi experimental design studies do not have critical design flaws that create confounds to the studies, and design features allow readers/consumers to rule out competing hypotheses for study findings. High quality in single subject design studies is reflected by a) the absence of critical design flaws that create confounds and b) the demonstration of experimental control at least three times in each study.

This definition and criteria are based on the following sources:

Horner, R., Carr, E., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single subject research to identify evidence-based practice in special education. *Exceptional Children, 71,* 165-180.

Nathan, P., & Gorman, J. M. (2002). *A guide to treatments that work.* NY: Oxford University Press.

Odom, S. L., Brantlinger, E., Gersten, R., Horner, R. D., Thompson, B., & Harris, K. (2004). *Quality indicators for research in special education and guidelines for evidence-based practices: Executive summary.* Arlington, VA: Council for Exceptional Children Division for Research.

Rogers, S. J., & Vismara, L. A. (2008). Evidence based comprehensive treatments for early autism. *Journal of Clinical Child and Adolescent Psychology, 37*(1), 8-38.

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Using these criteria, the empirical studies in the following list provide documentation for supporting Discrete Trial Teaching as an evidence-based practice. This list is not exhaustive; other quality studies may exist that were not included.

Preschool

Cohen, H., Amerine-Dickens, M., & Smith, T. (2006). Early intensive behavioral treatment: Replication of the UCLA model in a community setting. *Journal of Developmental and Behavioral Pediatrics*, *27*(2), 145-155.

Howard, J. S., Sparkman, C. R., Cohen, H. G., Green, G., & Stanislaw, H. (2005). A comparison of intensive behavior analytic and eclectic treatments for young children with autism. *Research in Developmental Disabilities, 26*(4), 359-383.

Remington, B., Hastings, R.P., Kovshoff, H., Degli Espinosa, F., Jahr, E., Brown T., et al. (2007). Early intensive behavioral intervention: Outcomes for children with autism and their parents after two years. *American Journal on Mental Retardation, 112*(6), 418-438.

Smith, T., Groen, A., & Wynn, J. W. (2000). Randomized trial of intensive early intervention for children with pervasive developmental disorder. *American Journal on Mental Retardation, 105*(4), 269-285.

Whalen, C., & Schreibman, L. (2003). Joint attention training for children with autism using behavior modification procedures. *Journal of Child Psychology & Psychiatry*, *44*(3), 456-468.

Elementary

Dib, N., & Sturmey, P. (2007). Reducing student stereotypy by improving teachers' implementation of discrete-trial teaching. *Journal of Applied Behavior Analysis, 40*(2), 339-343.

Eikeseth, S., Smith, T., Jahr, E., & Eldevik, S. (2002). Intensive behavioral treatment at school for 4-7 year-old children with autism. *Behavior Modification*. *26*(1), 49-68.

Lovaas, O. I. (1987). Behavioral treatment and normal educational and intellectual functioning in young autistic children. *Journal of Consulting and Clinical Psychology. 55*, 3-9.

McEachin, J. J., Smith, T., & Lovaas, O. I. (1993). Long-term outcomes for children with autism who received early intensive behavioral treatment. *American Journal on Mental Retardation, 97*(4), 359-372.

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STEP-BY-STEP INSTRUCTIONS

Steps for Implementation: Discrete Trial Training

Bogin, J., Sullivan, L., Rogers, S., & Stabel. A. (2010). *Steps for implementation: Discrete trial training*. Sacramento, CA: The National Professional Development Center on Autism Spectrum Disorders, The M.I.N.D. Institute, The University of California at Davis School of Medicine.

Discrete trial training (DTT) is a method of teaching in which the adult uses adult-directed, massed trial instruction, reinforcers chosen for their strength, and clear contingencies and repetition to teach new skills. DTT is a particularly strong method for developing a new response to a stimulus. Its limitations involve lack of reinforcement of learner spontaneity and difficulty with generalization. Thus, once a skill is learned in the DTT format, it is important to develop plans for teaching generalized use of the new skill across environments, materials, and people, and also to develop teaching plans for learner initiation of the new skill.

Using DTT for a learner with autism involves the following steps.

Step 1. Deciding What to Teach: Assessment and Summarizing Results

1. Teachers/practitioners decide which of the learner's IFSP or IEP objectives will be taught using a DTT approach.

Some learning objectives are better taught using DTT than others. Objectives that involve fine and gross motor skills, recreation, self care, cognitive, and academic skills are very often appropriate for DTT.

2. Teachers/practitioners discuss the planned use of DTT for the particular learning objective with other team members, especially parents/family members.

Team members who either have expertise in areas related to the objective or who will be teaching the skill should be consulted. This discussion could occur during the IEP/IFSP planning or progress review meeting.

3. Teachers/practitioners examine the target IEP/IFSP objective and refine if needed.

Since the DTT format relies on discrete behaviors which have a clear beginning, middle, and end, the learning objective needs to clearly state the desired antecedent, behavior, and criterion for mastery. For example, a language objective for a learner with ASD is to give two objects to an adult. To address this objective using DTT, teachers/practitioners would need to refine it so that the antecedent, behavior, and criterion for mastery are identified in the following ways.

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***Antecedent**:* Adult says to the learner, "Give me two _____."
***Behavior**:* Learner gives two objects to the adult.
***Criterion**:* Learner gives two objects to the adult during 80% of the trials.

This refined objective would then read:

When an adult asks Michael, to "give two" objects (antecedent phrase), Michael will pick up two objects and hand them to the adult (behavior phrase) in 80% of opportunities across three consecutive days (criterion).

Step 2. Breaking the Skill Down into Teachable Steps

1. Teachers/practitioners complete a task analysis of the skill, identify each step of the skill, and liststeps in sequential order from entry to mastery level.

The cornerstone of DTT is the use of task analysis to break down skills into small teachable steps (Cohen, Amerine-Dickens, & Smith, 2006; Eikeseth, Smith, Jahr, & Eldevik, 2002). To complete a task analysis, each step of the skill is broken down and listed in sequential order. For example, a task analysis for an objective involving naming pictures in a book might look like this:

Target objective for a 4 year old: When looking at a book with an adult, Steffie will answer the adult's question "What's that?", accompanied by a point to a picture, by naming 10 or more different pictures of animals and vehicles in five different unfamiliar books, during 90% of opportunities across three consecutive teaching sessions.

Mastery for each step is set at 90% correct independent response during three consecutive teaching periods.

Steps/Lesson Progression

1. Names 2-3 animal pictures with partial verbal prompt
2. Names 2-3 animal pictures independently
3. Expressively identify 2-3 animal pictures in one familiar book
4. Expressively identify 4-5 animal pictures on cards
5. Names 4-5 animal pictures in five different books
6. Names 2-3 vehicle pictures with partial verbal prompt
7. Names 2-3 vehicle pictures independently
8. Names 2-3 vehicle pictures in one familiar book
9. Names 4-5 vehicle pictures on cards
10. Names 4-5 vehicle pictures in five different books

For more information on how to complete a task analysis, please refer to the Evidence-Based Practice Brief: Task Analysis (National Professional Development Center on ASD, 2009).

2. After completing a task analysis for each skill, teachers/practitioners list the steps clearly so any team member can complete the trials if necessary.

When listing the steps, the directions from the instructor (also called the stimulus or antecedent), the range of *responses* that are or are not acceptable, the *prompting* that may be required, and the *consequence* that the instructor must present to reinforce the desired behavior or to discourage an undesired behavior must be included.

Reviewing other evaluations/assessments may be useful to provide information about current levels of proficiency and where your teaching steps might start. Evaluations that could be referenced include:

- speech/language,
- reading/literacy, and
- gross/fine motor.

Reviewing a curriculum tool may be helpful if additional assistance is needed to decide on the steps. Curriculum assessments can be helpful as guides for refining objectives, creating a hierarchy of skills, determining a baseline level of a skill, deciding on an age appropriate demonstration of the skill, and making decisions about what skills to teach and when to teach them.

Examples of curriculum-based assessment guides include:

- *Teaching Developmentally Disabled Learners: The Me Book* (Lovaas, 1981)
- *Teaching Individuals with Developmental Delays* (Lovaas, 2003)
- *A Work in Progress* (Leaf & McEachin, 1999)
- *Behavioral Intervention for Young Learners with Autism* (Maurice, Green, & Luce, 1996)
- *Assessment of Basic Learning and Language Skills* (Partington & Sundberg, 1998)

Step 3. Setting-up the Data Collection System

1. Teachers/practitioners select data sheets specifically designed for the skill being taught.

One of the defining characteristics of a high quality discrete trial training program is the collection of trial by trial data. When setting up the DTT instruction plan, it is important to have data sheets specifically designed for the skill being taught. Different skills require different approaches to measurement. Sometimes it is possible to combine two different types of data sheets onto one document. For example, a data sheet that is considered *self graphing* means that you mark the trial-by-trial data directly into graphing squares. Data sheets of this sort can be helpful because there are fewer steps to show the data

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in both a trial-by-trial and visual format. See sample data sheets that accompany this document. Table 1 provides a list of materials that should be considered when setting up a data collection system.

Table 1. Suggested Materials to Include in the Data Collection System

Trial by trial data sheets which contain: • a place for documenting prompt level (Please see Prompting Brief) • key for abbreviations • criteria for mastery • places to record the dates when trials are introduced and mastered
Graphing sheets
Data sheets which are both trial-by-trial and graphing in one (i.e., self graphing)
Data sheets for recording interfering behaviors
Other necessary data sheets (toileting, food intake, etc.)
Summary sheet for each session
Space designated for parent, therapist, and school communication

Step 4. Designating Location(s)

1. Teachers/practitioners generate a list of possible locations in which the teaching can take place.

Selecting an appropriate location or locations for teaching is a very important part of planning DTT instruction. When the team meets either during the IEP/IFSP meeting or separately, it might be helpful to generate a list of possible locations where the teaching can take place. Each location should be carefully examined to determine the advantages and disadvantages of that location. Considerations might include:

- a quiet place without too many distractions,
- sufficient space for instruction and for breaks,
- easy access to peers for generalization, and
- adequate lighting and seating (seat and table that fits the learner's body, with feet and back supported by the chair and hips, knees, ankles, and elbows at 90 degrees).

2. Teachers/practitioners select location(s) for DTT.

Often, two or more locations are better than one, because multiple locations can be helpful when working toward generalization.

Step 5. Gathering Materials

1. Teachers/practitioners assemble materials to be used during the teaching.

Having the correct materials will make your program easier and more efficient to run. Below is a list of materials that will be helpful in setting up your program:

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- Notebooks/ binders for data collection and team communication
- Preference list or menu based on preference assessment
- Variety of tangible reinforcers (edible and non-edible)
- Pictures or icons of preferred social activities (reinforcers)
- Instructional materials (letters, shapes, colors)
- Object related materials (blocks, toys, real life materials)
- Pens, pencils, markers
- Bins for storage which can be clearly labeled

Step 6. Delivering the Trials

1. Teachers/practitioners assist the learner to transition to the teaching location.

When it is time to start the trials, learners must transition to the teaching area. To help transition learners to the DTT trials, it is sometimes helpful to give them a warning (i.e., "five more minutes of play time") or other cues that are meaningful and motivating. When thinking about different ways to cue transitions, remember the goal of generalization. The more natural and commonly occurring the cue is (i.e., an actual clock instead of a timer), the more likely it is that learners will generalize the ability to transition from one activity to another.

2. Teachers/practitioners obtain the learner's attention and, together, select reinforcers.

After the learner is seated, practitioners should make certain that they have the learner's attention. If necessary, the practitioner may need to show the learner an array of reinforcers to choose from. Reinforcers may include:

- a desired toy or object,
- an action or movement that the student enjoys,
- a picture or icon of a pleasurable activity that can take place after the trial is completed (i.e., shooting hoops),
- food or drink (this should be used cautiously),
- a few seconds of video or music, and
- a token that can be exchanged for a tangible reinforcer.

3. Teachers/practitioners provide the instruction or other Sd (antecedent) and wait for a response.

For example, the cue for naming pictures (e.g., "What's this?") given by the adult to the 4 year old is the stimulus or instruction for the response.

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4. If the learner responds **appropriately (**(for example, by saying, "dog" after the teacher points to a picture of the dog and says, "What's this?") **,** teachers/practitioners deliver a reinforcing consequence or reinforcer and mark the trial as correct.

5. If the learner does not respond to or responds incorrectly**,** teachers/practitioners do one of the following:

    a. Provide corrective feedback and begin the trial again, presenting the antecedent or cue.
    b. prompt the learner to respond correctly, reinforce, and record the result of the prompted trial,
    c. provide another trial, with reduced or no prompting, reinforce appropriately and record.

There are many different prompts that can be used for various teaching tasks, including full physical prompts (hand over hand), partial physical prompts (light touch, often to 'guide' the learner's arm), modeling or demonstration (the adult responds correctly to get the learner to imitate the correct response), verbal prompts (the adult models the verbal response), and partial verbal (the adult partially verbalizes the correct response, e.g., "ba" to prompt "ball"). After the response is given and/or prompted, the learner's response should be recorded on the data sheet. For more information on prompting please consult the *NPDC Evidence Based Practice brief and module on Prompting* (2009) for a more complete description of prompting procedures.

6. Teachers/practitioners immediately repeat the same instruction in the same way as above for the targeted number of trials: rewarding, correcting, prompting, and recording for each trial.

7. When DTT instruction begins for a new skill, teachers/practitioners may need to reinforce every positive response from the learner with both social and tangible reinforcement.

As the learner's correct responding increases, teachers/practitioners can reduce the rate of tangible reinforcement. Later, the learner may respond to several trials before receiving a tangible reinforcer, and ultimately, should find social rewards sufficiently powerful for learning.

Step 7. Massed Trial Teaching

A primary characteristic of DTT is the massed trial approach (the features of a learning trial are described in the subsequent steps). This means that teachers/practitioners

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repeat the same learning trial several times in a row, ensuring that the learner is successful multiple times at whatever step of the skill is being taught.

1. Teachers/practitioners begin the teaching episode with a *maintenance trial* (demonstration of a skill already mastered) and record the result.
2. Teachers/practitioners present the teaching step, if the learner passes the maintenance trial.
3. If the learner responds correctly on the first trial, teachers/practitioners repeat the teaching step several more times and record the results.
4. Teachers/practitioners present a more difficult level if the learner has reached the mastery criterion for the step (e.g., 90% success for three consecutive teaching sessions).
5. If the learner does not pass the trial step correctly, teachers/practitioners administer the trial again.
6. If the learner is successful, teachers/practitioners repeat items 3 and 4 above until mastery is accomplished.
7. If the learner is unsuccessful, teacher/practitioners repeat the trial adding an increased level of assistance (for example a physical rather than verbal prompt) to assure that the learner performs the skill and is reinforced.
8. Teachers/practitioners repeat the step, continuing to add the prompts, 3-5 more times.
9. If the learner is consistently successful, teachers/practitioners repeat the trial without the prompt several more times.
10. If the learner continues to fail the unprompted trials, teachers/practitioners will add the prompt again for several more successful trials before ending the teaching for the day.
11. Teachers/practitioners review mastered steps (maintenance trials) once or twice during each session and teach new steps following the massed trials format until all steps of the skill have been mastered.

In DTT (and all other kinds of learning), it is extremely important that most trials be reinforced. ***For more information about how to implement reinforcement with learners with ASD, please refer to the Evidence-Based Practice Brief: Reinforcement (National Professional Development Center on ASD, 2009)***. Failed trials lead to behavior problems. Thus, in the face of learner failures, the adult moves quickly to simplify the task so that the learner can be reinforced. For example, if a learner was having a hard time labeling new or novel pictures the teacher/practitioner could ask the learner to label known pictures which are easy for the learner to identify. When the learner identifies the known pictures correctly, the teacher/practitioner can reinforce the correct answers.

Once the step being targeted is at mastery criteria, that step will be carried out only once or twice a session, for maintenance, and the next step becomes the targeted step. This process of reviewing mastered, or maintenance skills, and teaching the new step

using massed trials, continues until all steps are mastered. At that point, the objective is mastered.

Step 8. Conducting Discrimination Training

Another part of DTT consists of teaching a learner a new response to a stimulus. When teaching a new response, the learner must first be taught to discriminate the stimulus from others. Teaching a learner the concept of "blue" involves teaching the learner to first discriminate the color blue from all others, and then to perform a specific behavior in response to the instruction. The steps for teaching the learner to discriminate a novel stimulus are as follows:

1. Teachers/practitioners present the new stimulus to the learner, provide the instruction, prompt the target skill/behavior, and reinforce.

2. Teachers/practitioners systematically fade prompts until the learner independently and consistently performs the skill with the one stimulus object.

3. Teachers/practitioners present the target stimulus as usual, but also present another stimulus, the distracter, in the periphery; give the instruction; elicit the behavior; and reinforce.

For example, if you are teaching the color blue and using a blue block, then a red block would be a good distracter. It should vary from the target only on the specific dimension you are teaching. Assuming the learner responds correctly, change the position of the distracter on each trial, moving it closer to the target, until the two are side by side. Once the learner is consistently responding correctly, move the two stimuli around, reversing sides, placing them vertically, etc, until the learner passes consistently. Adjusting the presentation of antecedent stimuli (order, proximity, sequence, etc.) is called random rotation.

4. Teachers/practitioners add a different distracter. Once the learner performs correctly, use all three stimuli for the trials.

Keep the positions consistent until the learner is consistently correct, and then start changing the positions, assuring that the learner ends up with consistently correct responses to each change. Finally, vary the positions randomly (random rotation), so that the learner is clearly discriminating the target stimulus.

5. Teachers/practitioners teach generalized use of the skill or concept by:

    a. teaching discrimination of multiple stimuli.

        Teachers/practitioners will need to re-teach the concept with several different stimuli (blue blocks, blue crayons, blue cars, etc.) in order to be sure that the

learner understands the concept. You can "probe" the learner's understanding by introducing a new set of materials that vary only by the dimension you are teaching and asking for the target item (e.g., provide several different colored crayons and give the instruction for indicating the blue one). If the learner selects the correct item without being taught, you have evidence that the learner has generalized the concept. From that point forward, review the skill with a variety of different items. If the learner does not choose correctly, then re-teach the steps above with a new set of materials (it will go more quickly this time!). Once the learner demonstrates mastery with new materials, probe again. Continue in this fashion until the learner shows a generalized concept.

b. teaching skill applied to multiple situations.

For skills that are mastered at the teaching table, begin to practice the skill in other situations (when playing on the floor), in a different room in the house, when coloring, etc.). If the learner does not respond correctly, conduct teaching trials in that location following the failure. The goal is for the learner to demonstrate the behavior in multiple situations and with multiple different stimuli.

Step 9. Review and Modify

1. Teachers/practitioners continuously review the learner's progress and modify the program to reflect the progress the learner has made.

2. Teachers/practitioners modify the program to reflect the progress the learner has made by changing steps (either to higher or lower levels) if needed.

3. Teachers/practitioners should review mastered programs and continue to teach them as *'maintenance'* trials.

4. Maintenance trials are specifically targeted for generalization. Generalization may mean:

   a. practicing the trials in other settings,
   b. with different adults,
   c. with different reinforcers, and/or
   d. with different instructions/stimuli.

5. Educational team meets regularly to report on the learner's progress and identify potential changes to the learner's program.

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Implementation Checklist for Discrete Trial Training

Bogin, J., Sullivan, L., Rogers, S., & Stabel. A. (2008). *Implementation checklist for discrete trial training.* Sacramento, CA: The National Professional Development Center on Autism Spectrum Disorders, The M.I.N.D. Institute, The University of California at Davis School of Medicine.

Instructions: The Implementation Checklist includes each step in the DTT process. Please complete all of the requested information including the site and state, individual being observed, and the learner's initials. To assure that a practice is being implemented as intended, an observation is *always* preferable. This may not always be possible. Thus, items may be scored based on observations with the implementer, discussions and/or record review as appropriate. Within the table, record a 2 (implemented), 1 (partially implemented), 0 (did not implement), or NA (not applicable) next to each step observed to indicate to what extent the step was implemented/addressed during your observation. Use the last page of the checklist to record the target skill, your comments, whether others were present, and plans for next steps for each observation.

Site: _____ State:_____
Individual(s) observed: _____ Learner's Initials: _____

Skills below can be implemented by a practitioner, parent or other team member.

	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
Planning (Steps 1-5)									
Step 1: Deciding What to Teach		**Score****							
1. Decide which of the learner's IFSP or IEP objectives will be taught using a DTT approach.									
2. Discuss the planned use of DTT for the particular learning objective with other team members, especially parents/family members.									
3. Examine the target IEP/IFSP objective and refine if needed.									
Step 2. Breaking the Skill Down into Teachable Steps									
1. Complete a task analysis of the skill, identify each step of the skill, and list steps in sequential order from entry to mastery level.									
2. List the steps clearly so any team member can complete the trials if necessary.									

****Scoring Key: 2 = implemented; 1 = partially implemented; 0 = did not implement; NA = not applicable**

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	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
Step 3. Setting-up the Data Collection System		**Score****							
1. Select data sheets specifically designed for the skill being taught.									
Step 4. Designating Location(s)									
1. Generate a list of possible locations in which the teaching can take place.									
2. Select location(s) for DTT.									
Step 5. Gathering Materials									
1. Assemble materials to be used during the teaching.									
Intervention (Steps 6-8)									
Step 6. Delivering the Trials									
1. Assist the learner to transition to the teaching location.									
2. Obtain the learner's attention and, together, select reinforcers.									
3. Provide the stimulus or instruction and wait for a response.									
4. If the learner responds appropriately, deliver a reinforcing consequence or reinforcer and mark the trial as correct.									
5. If the learner does not respond to or responds incorrectly, do one of the following: a. provide corrective feedback and begin the trial again, presenting the Sd (antecedent or cue), b. prompt the learner to respond correctly, reinforce, and record the result of the prompted trial, or c. provide another trial, with reduced or no prompting, reinforce appropriately, and record									

****Scoring Key: 2 = implemented; 1 = partially implemented; 0 = did not implement; NA = not applicable**

Module: Discrete Trial Training (DTT)

	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
1. Immediately repeat the same instruction in the same way as above for the targeted number of trials: rewarding, correcting, prompting, and recording for each trial.									
2. When DTT instruction begins for a new skill, reinforce every positive response from the learner with both social and tangible reinforcement.									
Step 7. Massed Trial Teaching									
1. Begin the teaching episode with a *maintenance trial* (demonstration of a skill already mastered) and record the result.									
2. Present the teaching step, if the learner passes the maintenance trial.									
3. If the learner responds correctly on the first trial, repeat the teaching step several more times and record the results.									
4. Present a more difficult level if the learner has reached the mastery criterion for the step (e.g., 90% success for three consecutive teaching sessions).									
5. If the learner does not pass the trial step correctly, administer the trial again.									
6. If the learner is successful, repeat items 3 and 4 above until mastery is accomplished.									

****Scoring Key: 2 = implemented; 1 = partially implemented; 0 = did not implement; NA = not applicable**

Module: Discrete Trial Training (DTT)

	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
Step 7. Massed Trial Teaching (cont.)		**Score****							
7. If the learner is unsuccessful, repeat the trial adding an increased level of assistance to assure that the learner performs the skill and is reinforced.									
8. Repeat the step, continuing to add the prompts, 3-5 more times.									
9. If the learner is consistently successful, repeat the trial without the prompt several more times.									
10. If the learner continues to fail the unprompted trials, add the prompt again for several more successful trials before ending the teaching for the day.									
11. Review mastered steps (maintenance trials) once or twice during each session and teach new steps following the massed trials format until all steps of the skill have been mastered.									
Step 8. Conducting Discrimination Training									
1. Present the new stimulus to the learner, provide the instruction, prompt the target skill/behavior, and reinforce.									
2. Systematically fade prompts, until the learner independently and consistently performs the skill with the one stimulus object									
3. Present the target stimulus as usual, but also present another stimulus, the distracter, in the periphery; give the instruction; elicit the behavior; and reinforce.									
4. Add a different distracter. Once the learner performs correctly, use all three stimuli for the trials.									

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Module: Discrete Trial Training (DTT)

	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
Step 8. Conducting Discrimination Training (cont.)		**Score****							
5. Teach generalized use of the skill or concept by:									
a. teaching discrimination of multiple stimuli.									
b. teaching skill applied to multiple situations.									
Progress Monitoring (Step 9)									
Step 9. Review and Modify									
1. Continuously review the learner's progress and modify the program to reflect the progress the learner has made.									
2. Modify the program to reflect the learner's progress by changing steps (either to higher or lower levels) if needed.									
3. Review mastered programs and continue to teach them as '*maintenance*' trials.									
4. Specifically target maintenance trial for generalization by practicing trials:									
a. in other settings,									
b. with different adults,									
c. with different reinforcers, and/or									
d. with different instructions/ stimuli.									
5. Educational team meets regularly to report on the learner's progress and identify potential changes to the learner's program.									

****Scoring Key: 2 = implemented; 1 = partially implemented; 0 = did not implement; NA = not applicable**

Module: Discrete Trial Training (DTT)

Date	Observer Initials	Target Skill/Behavior, Comments, and Plans for Next Steps
Date	**Observer Initials**	**Target Skill/Behavior, Comments, and Plans for Next Steps**
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Module: Discrete Trial Training (DTT)

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Module: Discrete Trial Training

Discrete Trial Training
Blank Self-Graphing Trial by Trial Data Sheet

Bogin, J. (2006). *DTT sample: Blank self-graphing trial-by-trial data sheet.* Unpublished document.

Program name_____ Learner's initial's_____

Teacher/practitioner's name_____ Target Skill/Behavior _____

Task analysis of skill/behavior

	Stimulus	Desired Response	Date Started	Date Mastered
1.				
2.				
3.				
4.				
5.				

Criteria for mastery: 80%-100% correct responses (independent) over three sessions
Correct answers are scored from the bottom and incorrect answers are scored from the top

Step																								
Date																								
Teacher Initials																								

Module: Discrete Trial Training

Prompt level																							

Prompting key: FP- full physical; PP- partial physical; V-Verbal; G-gestural; TD- time delay

Discrete Trial Training
Sample Self-Graphing Trial by Trial Data Sheet

Bogin, J. (2006). *DTT sample: Sample self-graphing trial-by-trial data sheet.* Unpublished document.

Program name_____ Learner's initial's_____

Teacher/practitioner's name_____ Target Skill/Behavior _____

Task analysis of skill/behavior

	Stimulus	Desired Response	Date Started	Date Mastered
1.	"Where is your nose?"	Points to nose	8/26/08	9/9/08
2.	"Show me your tummy"	Points to stomach	9/15/08	10/1/08
3.	"What do you eat with?"	Points to OR says mouth	10/2/08	
4.	"What do you see with?"	Points to or says 'eyes'		
5.	"What do you touch with?"	Says 'hands' or 'my hands'		

Criteria for mastery: 80%-100% correct responses (independent) over three sessions
Correct answers are scored from the bottom and incorrect answers are scored from the top

Step of TA	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3						
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Module: Discrete Trial Training

Date	8/27	8/28	8/29	9/2	9/3	9/4	9/6	9/9	9/15	9/16	9/17	9/22	9/24	9/27	9/30	9/31	10/2	10/3	10/4						
Teacher Initials	JB	JB	JB	JB	JB	JB	JB	JB	JB	JB	JB	JB	JB	JB	JB	JB	JB	JB	JB						
Prompt level	PP	G	G	V	V	I	I	I	PP	FP	PP	V	V	I	I	I	PP	V	V						

Prompting key: FP- full physical; PP- partial physical; V-Verbal; G-gestural; TD- time delay