Chapter 14
Discrete Trial Training

Topics Covered Within This Chapter

Topics
Introduction
ABC Paradigm
Advantages and Disadvantages

Discrete trial training (DTT), also referred to as *discrete trial teaching* and *discrete trial format*, is easily the most well-known teaching approach based upon the concepts and principles of applied behavior analysis. Developed in the 1970s, it grew in popularity due to its documented effectiveness (e.g., Lovaas, 1987). DTT is a relatively simple teaching procedure that involves clearly communicating the expected response, providing assistance in the form of prompts, immediately correcting errors, and reinforcing correct responses. As a result, many professionals such as new direct-service staff, teachers, and paraprofessionals can learn to implement DTT quickly and effectively (Catania et al., 2009; Higbee et al., 2016; Nosik et al., 2013; Vladescu et al., 2012).

T. N. Davis, J. S. Akers, *A Behavior Analyst's Guide to Supervising Fieldwork*,
https://doi.org/10.1007/978-3-031-09932-8_14

ABC Paradigm

DTT consists of learning trials. Each DTT learning trial is aligned with the antecedent–behavior–consequence (ABC) model (see Fig. 14.1; Webber & Scheuermann, 2008). Within the antecedent phase at the start of a DTT trial, the clinician first secures client attention. When attention is secured, the clinician delivers the discriminative stimulus. Transitioning to the behavior phase of a trial, the client responds to the discriminative stimulus, which, in most cases, will require the assistance of a prompt. Ending with the consequence phase of the DTT trial, the clinician delivers the appropriate consequence, based on if the client responded correctly or made an error. Finally, a short intertrial interval provides time to record data, consume reinforcement, and engage in rapport-building activities, after which a new trial is presented.
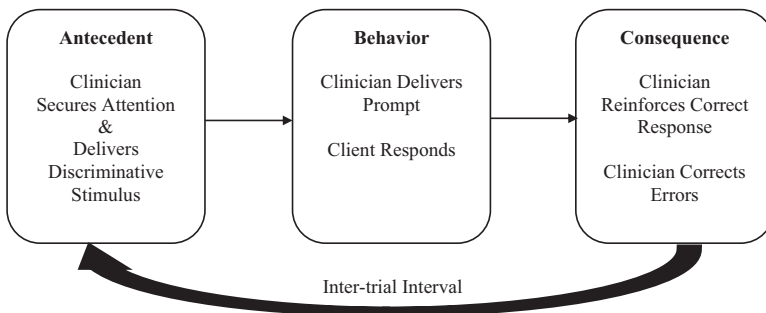
DTT aligned with the ABC paradigm.

Fig. 14.1   DTT aligned with the ABC paradigm

Securing Attention

In order for a DTT trial to be successful, the client must be attending to the clinician. Securing attention may take many forms. For example, this may be done by saying the client's name or a variety of other vocalizations (e.g., "look at me") and gestures (e.g., pointing to the clinician's eyes). Your supervisees will be familiar with their clients, which will help identify the best methods for securing attention.

Discriminative Stimulus

DTT emphasizes the establishment of stimulus control. The purpose of DTT is to teach the client to engage in specific behaviors in response to specific stimuli (i.e., stimulus control). For example, DTT may be used teach sight words. The clinician wants the client's vocalization of the word "whole" to be under strong stimulus control; that is, the client should only vocalize the word "whole" when shown a flash card with the letters *w-h-o-l-e* and asked "what word?" but not when shown a flash card with the letters *w-a-s* or *w-h-e-r-e* or *w-h-y* and asked "what word?" Similarly, a client who has an imitation goal may be taught to imitate the clinician's behavior only after observing the discriminative stimulus of the clinician saying, "do this" followed by a motor movement. The clinician wants the client to imitate clapping when the clinician says "do this" and claps, but would not want the client to imitate all of the clinician's behaviors throughout a day. As a result, supervisees need to learn how to select appropriate discriminative stimuli. Discriminative stimuli may consist of a vocalization, gesture, physical environment arrangement, or some combination of these. A discriminative stimulus should follow the three C's: concise, comprehensible, consistent (across trials). Concise simply means that the discriminative stimuli should be as brief as possible to elicit the desired response. Comprehensible means that the discriminative stimulus should be one that is relevant and understandable in the natural environment. For example, if the goal was to teach the client to clean up their belongings, it would be best for the clinician to use a discriminative stimulus of "clean up" rather than a flicker of the overhead lights or four-verse clean-up song as the first is more comprehensible and relevant in a natural environment. Finally, the discriminative stimulus should be held consistent across trials, at least during initial instruction. In later trials, the discriminative stimulus may be altered to promote generalization.

Prompts

Prompts are additional assistance the clinician delivers to help the client respond to the discriminative stimulus correctly. If the discriminative stimulus already evoked the desired response, this goal would be considered mastered and would not be targeted with the use of DTT; therefore, your supervisees will need to be proficient at selecting and delivering prompts within a DTT framework.

It is our experience that supervisees often have a difficult time distinguishing between discriminative stimuli and prompts. If this is the case for some of your supervisees, we find the most useful tool for helping them discriminate between the two can be found in a well-written goal. A goal (also referred to as an *objective*, among other names), should include a description of the discriminative stimulus to which the client should respond; however, it would not include the prompts that

may be delivered to assist the client in responding to that discriminative stimulus. Consider this example:

> By May 31st, when shown an analogue clock and asked, "what time is it?," Jaylen will independently and correctly vocalize the time, within 3 minutes of the actual time, 90% of trials across three sessions.

The discriminative stimuli to which Jaylen should vocalize the time are (a) being shown an analogue clock and (b) being asked "what time is it?" Any additional assistance beyond those two stimuli would be considered prompts. Prompts may include (a) the clinician holding up two fingers to indicate it is two o'clock, (b) holding up a flash card with a digital clock display of the time presented on the analog clock (e.g., 2:00), (c) the addition of *15*, *30*, and *45* over the minute markers corresponding to those times, and (d) the clinician vocalizing, "say, 'it's 2:00'," or an endless number of possibilities that would help Jaylen successfully read the analog clock. It will be very important to help supervisees make the distinction between discriminative stimuli and prompts because this is a foundational skill that allows them to collect accurate data regarding the client's correct (i.e., independent) responses versus prompted responses.

Prompts come in two forms: response prompts and stimulus prompts. Response prompts are delivered within a few seconds after the discriminative stimulus. Stimulus prompts are built into the discriminative stimulus. There are countless types of prompts, each offering varying degrees of support based upon the desired response and the client's needs.

Response prompts While this is not meant to be an exhaustive list, most response prompts can be categorized as physical guidance, model prompts, gesture prompts, or verbal prompts.

- Physical guidance involves physically assisting the client to complete a task. For example, physically holding a client's hands to guide them through the steps of hand washing. Physical prompts can vary from providing partial guidance to complete hand-over-hand guidance.
- Model prompts involve the clinician modeling the desired response. These are typically divided into vocal models and physical models. For example, if the clinician is teaching Mario his address, they would deliver the discriminative stimulus, "What is your address?" followed by a vocal model prompt of "1234 Oak Street, Tacoma, Washington." If the clinician is teaching Mario to call his mother from a list of contacts on his cellular phone, they would deliver the discriminative stimulus, "call your mom" while presenting a phone followed by physically modeling how to dial the number of Mario's mom on the phone. Similar to physical prompts, models may be partial or full models of the desired response.
- Gesture prompts are a body movement that indicates the desired response without modeling the desired response. For example, if a clinician is teaching Teresa how to set the table for dinner, after delivering the discriminative stimulus, "set

the table," the clinician may point to the cupboard where the plates are stored to prompt Teresa to begin setting the table by retrieving the plates.

- Verbal prompts provide instructions or hints. These differ from vocalizations that model the desired response. For example, if a clinician is teaching Zara to write the letters of her name, after delivering the discriminative stimulus, "write the letter Z," the clinician may deliver the verbal prompt, "grasp your pencil closer to the bottom" or "remember, start with a line going across the top from left to right."

Stimulus prompts   Stimulus prompt options are numerous as well. They are generally categorized as those that change the properties of the stimulus and those that change the position the stimulus.

- Changing properties of the stimulus may include changing the color, shape, size, or other dimensions. For example, if a clinician is working on the following goal, "When presented with drawing paper and a pencil and told to draw a square, Liam will independently and correctly draw a square 90% of trials across three sessions," they may use one of the following the stimulus prompts: (a) a square written in a dashed line that could be traced, (b) four dots on the paper to prompt the four corners of the square, or (c) a square written in highlighter that can be traced with a crayon.
- Changing the position of the stimulus involves moving a stimulus so that it is more prominent, typically closer to the client. For example, if a clinician is teaching Elijah to touch a photo of his mother in an array of three photos, the clinician may position the photo of the mom to be closer to Elijah than the photos of the other adults.

Prompts must eventually be faded so that the client learns to respond independently, only in response to the discriminative stimulus. Chapter 16 will provide your supervisees with in-depth review of prompt fading techniques.

Client Response

The client's response can be categorized according to two important questions: (a) when did the response occur (before or after the prompt) and (b) was the response correct? This leads to five potential options (Duker et al., 2004):

- Independent Correct: The client responded correctly and did so without a prompt.
- Prompted Correct: The client responded correctly, but with a prompt.
- Nonwait Error: The client responded incorrectly before a prompt was delivered.
- Incorrect Wait: The client responded incorrectly after a prompt was delivered.
- No Response: The client did not respond at all.

If the client responded correctly, the clinician will reinforce this response. In many cases, reinforcement will be differentiated based upon if the client's response

was independent correct or prompted correct. On the other hand, if the client emitted an error, the clinician will use an error correction procedure to correct the error and prompt a correct response.

Several procedural differences in error correction can be found across the literature and varying degrees of success across differing models suggest that some individualization is necessary in selecting the best error correction technique for each client (Carroll et al., 2015; Magee et al., 2006; McGhan & Lerman, 2013; Rapp et al., 2012; Rodgers & Iwata, 1991; Worsdell et al., 2005). At the very least, an error correction procedure should withhold reinforcement for errors and involve a subsequent trial for the opportunity to respond correctly, meaning a more immediate or more intrusive prompt would be delivered in conjunction with the subsequent opportunity to respond (Webber & Scheuermann, 2008). Some resources suggest that an error should be corrected immediately after the error by delivering an intrusive prompt for the correct response, which is then followed by a complete trial (e.g., Carroll et al., 2015). On the other hand, some resources suggest that the immediate prompt may inadvertently develop an undesirable response chain: discriminative stimulus→incorrect response→prompt→correct response. As a result, they suggest that, in response to an error, the clinician should represent the complete trial by delivering the discriminative stimulus again, followed by an immediate prompt (e.g., Webber & Scheuermann, 2008).

There are a number of procedural variations to error correction. These also include the use of a short time out in which stimuli are removed and the clinician orients their body away from the client for a few seconds (e.g., Carrol et al., 2015). Another variation is the number of repetitions of the correct response necessary to begin the next trial (e.g., Carrol et al., 2015). While the procedural fidelity checklist included in this chapter includes an example in which an error is followed by a new trial, this is not to suggest we favor one approach over another. In fact, we encourage you to support your supervisees in making data-based individualizations to the DTT procedures as necessary.

Intertrial Interval

The final portion of DTT is the time between the discrete trials. As the name suggests, the trials are discrete, so the intertrial interval should be a smooth transition between trials. However, this short duration of time is ideal for recording data and allowing for reinforcer consumption or access, when appropriate. We also recommend clinicians use this time to continue rapport building with the client. For example, if the client earned 30 seconds access to a preferred toy for correct responding, rather than idly waiting for the 30 seconds to pass, the clinician could play with the client and their toy, assuming that doing so would only increase reinforcing value, rather than decrease it.

Advantages and Disadvantages

The main advantage of DTT is its effectiveness (Catania et al., 2009; Higbee et al., 2016; Nosik et al., 2013; Vladescu et al., 2012). Moreover, its precise and scripted nature is easy for other providers and caregivers to implement. The teaching approach fits nicely into the context of school and clinical settings. On the other hand, the consistency of the discriminative stimuli within the DTT framework often fails to promote generalization. In other words, the clinician must program for the stimuli in the natural environmental to control the target behavior, which often requires a transfer of stimulus control before terminating treatment. See Chap. 31 for a more thorough discussion of methods to promote generalization. Similarly, the dense schedule of reinforcement must be systematically thinned in order for the behavior to persist among reinforcement schedules found in the natural environment. Finally, DTT may not be the most effective instructional framework for all goals, so it is crucial that your supervisees develop expertise in other instructional approaches. Despite its remarkable efficacy, DTT is not the be-all and end-all of instructional approaches, and no educational program should be comprised solely of one instructional approach.

Group Supervision Meeting

Below is a plan for activities to incorporate into a 1-hour meeting with a small group of supervisees.

Group Supervision Meeting Agenda

Time	Activity
0:00–10:00	Introduction to DTT
10:00–25:00	Writing Goals
25:00–40:00	Prompting
40:00–55:00	DTT Planning
55:00–60:00	Knowledge Check

Materials Needed

- Appendix A: *Sample Goals*, 1 copy per supervisee
- Each supervisee bring copy (paper or electronic) access to a client's goals
- Appendix B: *DTT Planning Guide* (Appendix B), 5 copies per supervisee

Reading Assignments

At least one week prior to the group supervision meeting, assign your supervisees to read about the subject. Below is a list of recommended assigned readings.

- Carrol et al. (2015)
- Dib & Sturmey (2007)
- Downs et al. (2008)
- Geiger et al. (2012)

Review Major Concepts

Begin your group supervision meeting by asking your supervisees if they have familiarity or experience with DTT. We imagine that most supervisees will have some experience implementing DTT, so give them a few minutes to share those experiences to begin the session. Ask those familiar with DTT to use one or two-word phrases to describe DTT. We expect supervisees to use words like *systematic*, *drills*, *trials*, *effective*, and *regimented*. As they share descriptions, expand on each. For example, if a supervisee describes DTT as *learning trials*, you could expand by saying, "yes, DTT is made up of learning trials that consist of six steps per trial." Of course, if you fail to understand how a description relates to DTT, ask the supervisee to elaborate and correct any misunderstandings.

Transition from the description of DTT to the six steps of DTT:

1. Secure Attention
2. Discriminative Stimulus
3. Prompt (if necessary)
4. Client Response
5. Reinforcer or Error Correction
6. Intertrial Interval

Lead into the framework by asking a supervisee to share what they know about the ABC paradigm (antecedent–behavior–consequence). On your slides for this meeting is Fig. 14.1 (see above). As you display this, explain how DTT is aligned with the ABC model. Slowly describe this figure as you explain how the six DTT steps align with the ABC framework.

Because we expect all of your supervisees will have some familiarity with DTT, lead a discussion of the advantages and disadvantages of DTT. Be sure that your supervisees identify a comprehensive list for both advantages and disadvantages.

Writing Goals

Inform your supervisees that the first step in planning to implement DTT is to specify what discriminative stimulus is expected to elicit what behavior. A well-written goal will detail both the discriminative stimulus and the client behavior; therefore, writing a clear goal is a foundational step in designing a DTT program, or any intervention program for that matter. Not only will a goal guide the DTT plan, but it will also provide clear communication about the client's therapeutic program to all stakeholders.

Explain that goals should consist of the following information: (a) the discriminative stimulus (b) the client, (c) the specific behavior, (d) the level of independence in which this behavior will be emitted, and (e) the criterion for mastery. *DTT Sample Goals* (Appendix A) contains several well-written goals. These are also presented in the PowerPoint slides available to you. Read the first goal aloud. Then, ask one supervisee to identify the discriminative stimulus, another to identify the client, another to identify the behavior, and so on. Repeat this process with the remaining goals.

For the second activity, your supervisees will identify the components of a goal using their client's actual goals. They should bring a list of goals to this meeting. You may wish for them to bring the goals for a single client or multiple clients, depending on how much practice you would like them to have. It is important that they have access to the written goal rather than a general description of the goal (e.g., "Liam is learning colors). Give your supervisees 5 to 7 minutes to review the goals. For each goal they should identify (a) the discriminative stimulus (b) the client, (c) the specific behavior, (d) the level of independence in which this behavior will be emitted, and (e) the criterion for mastery. After they work independently, have them pair with another supervisee and review each other's work for accuracy. Remind supervisees that they should maintain confidentiality when sharing their work; therefore, pseudonyms or initials should be used to protect the client's confidentiality.

Prompting

You will spend the next 15 minutes reviewing prompts. Begin this discussion by reminding your supervisees that if the client's correct behavior was reliably evoked by the discriminative stimuli described in the goal, then intervention would not be needed. In reality, prompts will be required, in addition to discriminative stimuli, to evoke the target behavior. In order to facilitate your supervisee's discrimination between the discriminative stimulus and a prompt, present each of the six goals in Appendix A again to the group. Ask a volunteer to identify the discriminative stimulus associated with the goal. Next, ask supervisees to describe prompts that may help evoke the target response. For example, with Goal One, supervisees should

identify that the discriminative stimulus for writing a letter of the alphabet is access to lined paper and a pencil and being asked to write the letter. Supervisees should identify additional prompts to support letter writing including: (a) a dot-to-dot of the letter to trace, (b) full physical guidance, (c) partial physical guidance, (d) the clinician modeling how to write the letter, (e) a written model of that letter, (f) instructions of how to move the pencil (e.g., "start at the bottom and draw a straight line up"), and many more possibilities. Repeat this process with all six goals.

Introduce the concept of response and stimulus prompts. Give examples of all the response prompts listed in the chapter or any additional that your supervisees may use. When giving examples, role-play the delivery of each prompt when possible. Next, provide examples of the stimulus prompts listed in the chapter. When possible, provide demonstrations as well. As you are introducing the concepts of prompts, remind your supervisees that Chap. 16 will provide in-depth guidance regarding the delivering and fading of prompts.

During the final 5 to 7 minutes of this activity, ask your supervisees to identify prompts that they could use for each of the client goals they brought to this meeting. Have them write down potential prompts. If there is enough time, share their prompts with a peer in order to give one another feedback.

DTT Treatment Plan

After spending sufficient time on the foundational concepts of discriminative stimuli and prompts, you will demonstrate for your supervisees how to plan for DTT. Begin by providing helpful reminders and guidance for each step. Include the following:

- Discriminative Stimulus: eliciting attention and the three C's of a good discriminative stimulus.
- Prompts: Deliver response prompts within a few seconds of the discriminative stimulus and stimulus prompts within the discriminative stimulus.
- Client Response: Review the five potential client responses and how the supervisee should respond to each.
- Reinforcer or Error Correction: When reviewing error correction, discuss the various approaches. Emphasize that at the very least, reinforcement should be withheld contingent upon an error and the client must have an additional opportunity to respond correctly. You may prefer to teach your supervisees a specific error correction procedure or you may wish to give them flexibility to develop the procedure based on the current literature; either is acceptable.
- Intertrial Interval: Your supervisee should collect data and allow sufficient time for reinforcer access.

After introducing the *DTT Planning Sheet* (Appendix B), model for your supervisees how to use this to plan DTT for Goal 1 from Appendix A (see second page of Appendix B as an example). Give your supervisees the remaining time in this meeting to complete the DTT Planning Guides, one for each of the remaining five goals in Appendix A. As they work, move about the room so that you can evaluate the progress of each supervisee throughout this independent activity. Verify that their DTT plan meets all of the aforementioned criteria and follows the planning sheet as you give one-on-one feedback.

Knowledge Check

The following questions can be administered in any method of your choice. These questions are designed to confirm your supervisee's understanding of the material associated with this chapter.

> **Knowledge Check**
>
> 1. What are the three C's of a good discriminative stimulus for DTT?
> 2. Which of the following are included in a goal: (a) discriminative stimulus, (b) prompting, (c) client behavior, or (d) error correction procedure?
> 3. When should a response prompt be delivered? When should a stimulus prompt be delivered?
> 4. What are the two non-negotiable features of error correction?
> 5. What are two advantages and two disadvantages of DTT?

> **Homework for Individual Supervision without a Client**
>
> 1. Select on goal from your client's therapeutic or educational program. Complete the *DTT Planning Guide* (Appendix B).

Individual Supervision Meeting Without a Client

Below is a plan for activities to incorporate into a 1-hour meeting with an individual supervisee.

Individual Supervision Meeting Without a Client Agenda

Time	Activity
0:00–10:00	Review DTT Planning Guide
10:00–20:00	Develop DTT Procedural Fidelity Checklist
20:00–50:00	Role-Play DTT and Measure Procedural Fidelity
50:00–60:00	Plan Baseline and Decision Decision-Making Guide

Materials Needed

- Appendix A: *DTT Planning Guide* completed, 2 copies
  - Instruct your supervisee to provide you with the completed guide at least 48 hours prior to your individual supervision meeting to give you time to review the results before the individual supervision meeting.
- Appendix C: *DTT Procedural Fidelity Checklist*, 1 copy
- Materials needed for DTT role play (e.g., discriminative stimuli, instructional materials, reinforcers)
- Appendix D: *DTT Data Sheet*, 2 copies
- Supervisee should bring a copy of, or be able to access graphed data, for the selected goal, if available

Review DTT Planning Guide

Your supervisee should send you the *DTT Planning Guide* for their client's goal at least 48 hours prior to your meeting. Review the guide and note any questions, praises, or corrections you have regarding the DTT plan. When you begin your meeting, spend the first 10 minutes discussing the items you previously noted. When you determine your supervisee's DTT plan is of sufficient quality to guide developing the DTT procedural fidelity checklist, move to the next activity in this meeting.

Develop DTT Procedural Fidelity Checklist

Using the approved content from the DTT planning guide, support your supervisee in writing a procedural fidelity checklist using *DTT Procedural Fidelity Checklist* (Appendix C) that is specific to this goal. The second page of Appendix C includes an example based on Goal 1 from Appendix A that you can use as an example. Allow your supervisee to take the lead in developing the document, while you provide consistent support as needed.

Role Play DTT and Measure Procedural Fidelity

We allotted 30 minutes for role play. During the role play, your supervisee will implement DTT with you playing the role of the client. Your supervisee will need to implement DTT exactly as prescribed in the procedural fidelity checklist you developed together. The role play should be as authentic as possible. This includes your supervisee collecting data (see Appendix D) and delivering reinforcers as they would during an authentic DTT session. We recommend dividing this role play time into 5-minute blocks. For 5 minutes, your supervisee implements DTT with you acting in the role of the client while you also evaluate their fidelity of implementation on the procedural fidelity checklist. After 5 minutes, pause to review their performance and deliver feedback. Repeat this 5-minute block pattern until your supervisee demonstrates the ability to implement DTT with fidelity (at least 90% of steps implemented correctly in one 5-minute role play). If this occurs in less than 30 minutes, use additional 5-minute blocks to continue to role play, but rather than evaluating your supervisee's fidelity of implementation, discretely collect data on your own performance (as a "client") for a 5-minute DTT session using the data sheet found in Appendix D. Use the 5-minute feedback block to calculate IOA of data collected on client behavior. In order to advance to implementing DTT with their client, your supervisee must demonstrate the ability to implement at least 90% of steps of DTT using their self-created procedural fidelity checklist in at least one role play session. If this fails to occur in the 30 minutes allotted for this activity, schedule an additional individual supervision meeting without a client to continue the role play until meeting this criterion.

Plan Baseline and Decision-Making Guide

Use the final 10 minutes of your meeting to confirm your supervisee's plan for conducting baseline sessions with the client. While it is likely that your supervisee or another implementer has been delivering instruction for the client's selected goal prior to your supervisee implementing DTT for this goal, it is important to collect baseline data so that the effectiveness of DTT can be evaluated. If baseline data had recently been collected on this client's goal, it may be in the best interest of the client to continue with instruction without returning to baseline. Therefore, you will spend your final 10 minutes to determine if baseline data should be gathered and if so, the procedures for doing so. Your supervisee will share the client's data in order for the two of you to determine (a) if baseline has been conducted and (b) if so, if it is appropriate to return to baseline or proceed with DTT intervention. Use this opportunity to revisit visual analysis skills introduced in Chap. 6.

If baseline had not been previously conducted or had been conducted a while ago, instruct your supervisee to conduct at least three baseline sessions. During baseline, your supervisee will deliver the discriminative stimulus, but will not

deliver prompts, praise, reinforcement, or error correction. The purpose of baseline is to determine the client's level of independence prior to intervention. After at least three baseline sessions have been conducted, your supervisee must graph these data and send to you for joint analysis. The purpose of conducting and analyzing baseline data is to determine if DTT intervention is warranted. Perhaps the client can perform this skill without assistance and a new goal should be targeted.

As you explain the purpose and plan for conducting baseline and evaluating the data collecting during these sessions, discuss anticipated data with your supervisee and how this would affect decision-making regarding the client's program. For example, discuss the possible responses to baseline data indicating (a) mastery of the skill, (b) near mastery of the skill, or (c) little to no ability to perform the behavior independently.

Homework

End the session by instructing your supervisee to conduct baseline sessions on the selected goal. Together, via informal communication such as email, determine if DTT for this goal is warranted. If DTT is warranted, proceed to the individual supervision meeting with a client in which you will observe your supervisee implementing the DTT program you created in this meeting. If not, you will need to work with your supervisee to select a different goal, collect baseline, and develop a DTT program prior to their individual supervision meeting with a client.

Homework for Individual Supervision without a Client
1. Conduct at least 3 baseline sessions with a client.
2. Graph data from baseline sessions.
3. Send graph to your supervisor. Via informal communication, determine if DTT is warranted.

Individual Supervision Meeting with a Client

Below is a plan for activities to incorporate into a 45-minute meeting with an individual supervisee.

Individual Supervision Meeting Without a Client Agenda

Time	Activity
0:00–30:00	Observe DTT, Collect Data on Client Behavior, and Measure Procedural Fidelity
30:00–45:00	Performance Feedback

<div align="center">✏️ **Materials Needed** 📚</div>

- Supervisee-developed procedural fidelity checklist completed, 1 copy
- Appendix D: *DTT Data Sheet*, two copies
- Clipboard
- Pen/Pencil

Observe DTT

You will observe your supervisee implementing DTT for up to 30 minutes. It is quite likely that this 30 minutes will need to be divided into shorter observations, based on the needs of the client. In fact, it may be helpful to divide the observation to allow for two or three separate evaluations of procedural fidelity and performance feedback. During the observation, collect data using your supervisee's individualized procedural fidelity measure (Appendix A) and collect data on the client's behavior using the DTT data sheet (Appendix D). If it is difficult to measure both simultaneously, divide your observation period in half and collect client data during the first half and supervisee procedural fidelity data during the second half.

Performance Feedback

Schedule at least 15 minutes to deliver performance feedback when you will not disrupt ongoing client services. Begin by delivering performance feedback regarding the fidelity of implementation of DTT. Next, compare data collected on client behavior. Ask your supervisee to calculate IOA. Discuss discrepancies and any possible steps to improving data collection if concerns are identified.

Mastery Criteria

In order to progress from this lesson, your supervisee must implement DTT and (a) accurately collect data with at least 80% agreement and (b) conduct DTT with at least 80% fidelity. If either of these is not met, a second individual meeting without a client with intensive role play and feedback should be scheduled.

📋 *Future Growth*
- ☐ Evaluate your supervisee's ability to implement DTT with the same client, but a different goal.
- ☐ Evaluate your supervisee's ability to implement DTT with a different client.
- ☐ Evaluate your supervisee's ability to teach a caregiver or service provider how to implement DTT.

Appendix A: Sample Goals

Goal 1: When given lined paper and a pencil and asked to write a letter of the alphabet, Deven will independently and legibly write the capital letter 80% of trials, across five consecutive sessions. This objective will target all letters of the alphabet.

Goal 2: When presented with two flashcards, each with 3 to 5 letter words (e.g., cat, horse), a line drawing that represents one of those two words (e.g., a drawing of a cat), and told, "find the match," Jaxon will independently match the picture to the written word at least 90% of trials, across four consecutive sessions. This objective will target the following words: cat, dog, pig, horse, cow, fish, and snake.

Goal 3: After being told the temperature range for a day and asked, "do you need a coat in that weather?", Grayson will independently, accurately, and vocally respond "yes" or "no" 100% of trials across five consecutive sessions.

Goal 4: When presented with a flashcard of a line drawing of a shape and asked, "what shape?", Sydney will independently and vocally tact the shape at least 70% of trials, across three sessions. This objective will target the following shapes: pentagon, hexagon, octagon, and parallelogram.

Goal 5: When presented with a pile of up to 20 items within reach and instructed, "find three [insert color] items," Mila will independently select three items from the pile and move them to a distinctive place at least 70% of trials across three sessions. This objective will target the following colors: red, green, yellow, blue, and orange.

Goal 6: When shown two items and asked, "where is the [insert one item name]?", Hannah will independently describe the location in relation to the other item using a preposition in the following format (e.g., "the car is under the table") at least 60% of trials across two sessions. This objective will target the following prepositions: *on, under, next to,* and *behind*.

Appendix B: DTT Planning Guide

Goal: _____

S^D	Prompt	Response	Reinforcement for Correct Responses	Error Correction for Incorrect Responses
		• Correct: • Anticipated Incorrect Responses:		

Sample Document

Goal: *When given lined paper and a pencil and asked to write a letter of the alphabet, Deven will independently and legibly write the capital letter 80% of trials, across five consecutive sessions. This objective will target all letters of the alphabet.*

S^D	Prompt	Response	Reinforcement for Correct Responses	Error Correction for Incorrect Responses
Given lined paper and pencil and asked to write [letter of alphabet].	*Full physical model delivered within 2 sec of S^D.*	*Correct: Writes letter within lines of paper in a manner that is legible to most readers.* *Anticipated Incorrect Responses:* • *Writes another letter* • *Writes letter outside of lines on paper* • *Emits problem behavior in lieu of writing*	• *Specific praise (e.g., great job writing the J).* • *1 correct letter = token on token economy board.* • *10 tokens = 5 min with iPad.*	• *Withhold praise and token.* • *Immediately begin new trial with immediate full physical prompt.*

Appendix C: DTT Procedural Fidelity Checklist

Supervisee: _____   Supervisor: _____

Client: _____   Date & Time: _____

Client Goal: _____

Step	Implemented Correctly? + = Yes − = No

_____ / _____ * 100 = _____ % of steps completed correctly
Steps Completed Correctly.   Total Number of Steps

DTT Procedural Fidelity Measure
Example

Supervisee: *Joel*_____   Supervisor: *Katie*_____

Client: *Deven*_____   Date & Time: *Feb. 5th 2:00 – 2:30 pm*_____

Client Goal: When given lined paper and a pencil and asked to write a letter of the alphabet, Deven will independently and legibly write the capital letter 80% of trials, across five consecutive sessions. This objective will target all letters of the alphabet.

Step	Implemented Correctly? + = Yes - = No N/A = Not Applicable
Before session begins, implementer gathered appropriate materials, including paper, pencil, data collection sheet, writing utensil, token economy, and iPad.	
Implementer places paper and pencil in front of Deven and says, "Deven, look at me"	
When Deven establishes eye contact, implementer says, "write [letter]."	
Contingent upon an independent correct response, the implementer delivers specific praise (e.g., "great job writing [letter]") and places two tokens on Deven's token board.	
Within 4 seconds of instructing Deven to write the letter, the implementer places their hand on Deven's hand and guides his writing of the letter.	
Contingent upon a prompted correct response, the implementer delivers specific praise (e.g., "great job writing [letter]") and places one token on Deven's token board.	
Contingent upon an error (non-wait or incorrect wait), the implementer places their hand over Deven's hands, terminating writing, and immediately begins a new trial.	
No praise or tokens are delivered contingent upon the error.	
During the subsequent trial, a full physical prompt is delivered immediately after the discriminative stimulus.	
After each trial, the implementer records accurate data.	
After Deven earns 10 tokens, the implementer pauses instruction and provides 5 min of access to the iPad.	

_____ / _____ * 100 = _____ % of steps completed correctly
Steps Completed Correctly.   Total Number of Steps

Appendix D: DTT Data Sheet

Client: _____

Date: _____   Time: _____

Observer One: _____   Observer Two: _____

Goal: _____

Instructions: For each trial, circle if the client performed the behavior correctly or not. Use the final column for additional anecdotal notes, as needed. Calculate percent correct on bottom row.

Trial	Performed Correctly?		Notes
1	Yes	No	
2	Yes	No	
3	Yes	No	
4	Yes	No	
5	Yes	No	
6	Yes	No	
7	Yes	No	
8	Yes	No	
9	Yes	No	
10	Yes	No	
11	Yes	No	
12	Yes	No	
13	Yes	No	
14	Yes	No	
15	Yes	No	
16	Yes	No	
17	Yes	No	
18	Yes	No	
19	Yes	No	
20	Yes	No	
Percent Correct:			

References

Catania, C. N., Almeida, D., Liu-Constant, B., & Reed, F. D. D. (2009). Video modeling to train staff to implement discrete-trial instruction. *Journal of Applied Behavior Analysis, 42*(2), 387–392.

Carroll, R. A., Joachim, B. T., St. Peter, C. C., & Robinson, N. (2015). A comparison of error-correction procedures on skill acquisition during discrete-trial instruction. *Journal of Applied Behavior Analysis, 48*(2), 257–273.

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.

Downs, A., Downs, R. C., Fossum, M., & Rau, K. (2008). Effectiveness of discrete trial teaching with preschool students with developmental disabilities. *Education and Training in Developmental Disabilities, 43*, 443–453.

Duker, P. C., Didden, R., & Sigafoos, J. (2004). *One-to-one training: Instructional procedures for learners with developmental disabilities*. Pro-Ed.

Geiger, K. B., Carr, J. E., LeBlanc, L. A., Hanney, N. M., Polick, A. S., & Heinicke, M. R. (2012). Teaching receptive discriminations to children with autism: A comparison of traditional and embedded discrete trial teaching. *Behavior Analysis in Practice, 5*(2), 49–59.

Higbee, T. S., Aporta, A. P., Resende, A., Nogueira, M., Goyos, C., & Pollard, J. S. (2016). Interactive computer training to teach discrete-trial instruction to undergraduates and special educators in Brazil: A replication and extension. *Journal of Applied Behavior Analysis, 49*(4), 780–793.

Lovaas, O. I. (1987). Behavioral treatment and normal educational and intellectual functioning in young autistic children. *Journal of Consulting and Clinical Psychology, 55*(1), 3–9.

Magee, S. K., & Ellis, J. (2006). The role of error-correction procedures in the reinforcement of errors. *Behavioral Interventions, 21*, 205–226. https://doi.org/10.1002/bin.217

McGhan, A. C., & Lerman, D. C. (2013). An assessment of error-correction procedures for learners with autism. *Journal of Applied Behavior Analysis, 46*, 626–639. https://doi.org/10.1002/jaba.65

Nosik, M. R., Williams, W. L., Garrido, N., & Lee, S. (2013). Comparison of computer based instruction to behavior skills training for teaching staff implementation of discrete-trial instruction with an adult with autism. *Research in Developmental Disabilities, 34*(1), 461–468.

Rapp, J. T., Marvin, K. L., Nystedt, A., Swanson, G. J., Paananen, L., & Tabatt, J. (2012). Response repetition as an error-correction procedure for acquisition of math facts and math computation. *Behavioral Interventions, 27*, 16–32. https://doi.org/10.1002/bin.342

Rodgers, T. A., & Iwata, B. A. (1991). An analysis of error correction procedures during discrimination training. *Journal of Applied Behavior Analysis, 24*, 775–781. https://doi.org/10.1901/jaba.1991.24-775

Vladescu, J. C., Carroll, R., Paden, A., & Kodak, T. M. (2012). The effects of video modeling with voiceover instruction on accurate implementation of discrete-trial instruction. *Journal of Applied Behavior Analysis, 45*(2), 419–423.

Webber, J., & Scheuermann, B. (2008). *Educating students with autism: A quick start manual*. Pro-Ed.

Worsdell, A. S., Iwata, B. A., Dozier, C. L., Johnson, A. D., Neidert, P. L., & Thomason, J. L. (2005). Analysis of response repetition as an error-correction strategy during sight-word reading. *Journal of Applied Behavior Analysis, 38*, 511–527. https://doi.org/10.1901/jaba.2005.115-04