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Evaluation of a Self-Instructional Package for Teaching Tutors to Conduct Discrete-Trials Teaching with Children with Autism

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Abstract

We used a modified multiple-baseline design across pairs of newly hired tutors to examine the effectiveness of a self-instruction package for teaching them to conduct discrete-trials teaching (DTT) to a confederate role-playing a child with autism. During Baseline, DTT skills were assessed while participants taught three tasks to the confederate. They then completed a training package that included a self-instructional manual, video demonstrations, and self-practice. During Post-training, participants were assessed while they taught the same three tasks to the confederate. Participants required an average of 3 hours and 56 minutes to master the manual, and DTT accuracy increased from 46.2% to 85.5%. One participant took part in a generalization phase with a child with autism, and her DTT accuracy averaged 80.1%. The results suggest that the self-instructional package is an effective tool for teaching newly hired tutors to conduct DTT with a confederate role-playing a child with autism.

The principles and procedures of applied behaviour analysis (ABA) used in Early Intensive Behavioural Intervention (EIBI) programs have been demonstrated to provide beneficial and long-lasting gains in the treatment of autism, and EIBI has been cited as the treatment of choice (Matson & Smith, 2008; Matson and Sturmey, 2011; Department of Health, 1999). EIBI has resulted in significant numbers of such children obtaining average intelligence, normal functioning and language skills, and diminished behavioural problems (e.g., Eikeseth, 2009; Smith, Eikeseth, Klevstrand, & Lovaas, 1997; Lovaas, 1987; McEachin, Smith, & Lovaas, 1993; Eikeseth, Smith, & Eldevik, 2002). A frequently used method in EIBI programs for children with autism is discrete-trials teaching (DTT), which is a method for conducting training trials in rapid succession during training sessions with a child. Although there is a high demand for ABA tutors and parents to conduct DTT training sessions with children in EIBI programs, there is not a lot of published research on effective and cost-efficient strategies for teaching individuals how to conduct DTT training sessions. In this study, we evaluated a self-instructional package for teaching newly hired ABA tutors to apply DTT to teach a confederate role-playing a child with autism.

Discrete-Trials Teaching (DTT)

Children receiving EIBI usually receive several hours of DTT daily (Fazzio & Martin, 2011). In DTT, a teacher first provides an antecedent such as an instruction (e.g., "point to the ball").

The child then responds (e.g., by pointing to the ball or not), and may be prompted by the teacher (e.g., physical guidance) to minimize errors. If the child responds correctly, then the behaviour is reinforced (e.g., with praise). Finally, the teacher pauses for a 1–5 second inter-trial interval before presenting the child with the next antecedent (Smith, 2001). The trials are usually presented in blocks of 10–20, each trial has a duration of 5–20 seconds, and provides many learning opportunities. DTT is useful for teaching numerous behaviours, such as speech sounds, motor skills, and new discriminations (Smith, 2001).

Although there is a great need for the training of tutors and parents of children with autism to conduct DTT, Thomson, Martin, Arnal, Fazzio, and Yu (2009) identified only 20 studies that examined procedures for teaching DTT. The most common teaching methods consisted of various forms of instruction, demonstration or modeling, feedback, and role-playing and practice. Reported changes in DTT accuracy from baseline ranged from 9.67% to 98%, however different instructional procedures were used in the experiments, changes in accuracy were not always reported or applicable, and there were several important limitations of the studies. Specifically, the descriptions of the training procedures were often brief and not always detailed enough to allow for replication, there was a lack of procedural reliability measures and generalization assessments, training time was not always stated, participants differed in the amount of DTT instruction that they received before training, and the dependent variables were not consistent. Due to these limitations, there is a need for additional research in the evaluation of instructional methods for teaching individuals to conduct DTT.

The Development and Evaluation of a Self-Instructional Approach to Teaching DTT

To address the need for an efficient method to teach DTT to individuals who work with children with autism, Fazzio and Martin (2006) created *Discrete-Trials Teaching with Children with Autism: A Self-Instructional Manual*. Since the original version, the manual has been revised three times to increase its effectiveness as a training tool. In the experiments to evaluate each version of the manual, a common research strategy was used. First, in a Baseline phase, participants (university students or tutors) were provided with one-page summaries, data sheets, and teaching materials to teach each of three tasks to a child with autism: (a) pointing to named pictures (e.g., when three options are placed in front of the child, the teacher instructs the child to point to the picture of the dog); (b) identity matching (e.g., when a picture of a dog, a house, and a tree are placed in front of the child, and the child is given a picture of a dog, the correct response is to match the pictures of the dog by placing one picture on top of the other); and (c) motor imitation (e.g., a teacher will put his/her arms up and say "do this"). Participants then attempted to teach each of the three tasks to a confederate role-playing a child with autism. In the second phase, in a modified multiple-baseline design across several participants, each participant studied the self-instructional manual until they passed a mastery test on study questions. They then attempted to re-teach the three tasks to the confederate, one session per task, using DTT. In some experiments, if participants performed at a high level in Phase 2, they were then assessed in a Generalization phase where they taught a child with autism. In each session where a participant attempted to apply DTT to teach a task to the confederate or to a child with autism, the participant's performance was assessed using the Discrete-Trials Teaching Evaluation Form (DTTEF) which has been demonstrated to have good reliability and validity (Babel, Martin, Fazzio, Arnal & Thomson, 2008; Jeanson, et al., 2010).

In the first evaluation of the Fazzio and Martin (2006) manual, it consisted of 21 pages of self-instruction and included 19 of the DTT components shown in Figure 1. Although positive results were obtained with university participants in two studies (Arnal et al., 2007; Fazzio, Martin, Arnal, & Yu, 2009), participants also had to be shown a video on DTT or receive a feedback and demonstration session in order for a mastery criterion to be achieved.

Fazzio and Martin (2007) revised the manual to include 37 pages, the DTT components shown in Figure 1, twice as many study questions, and practice sections where the reader was prompted

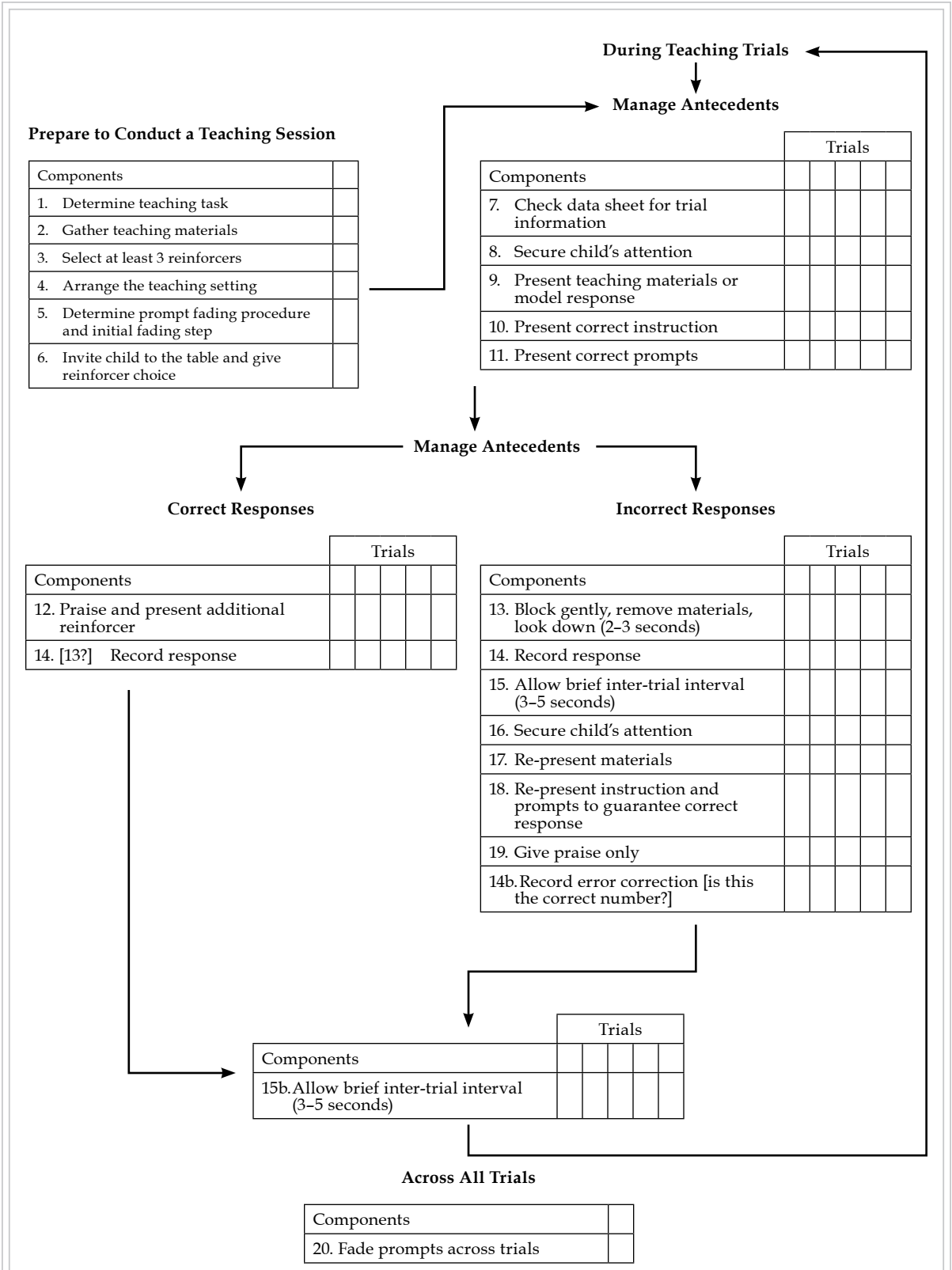

Figure 1. Components of the Discrete-Trials Teaching Evaluation Form (DTTEF) reprinted with permission from Fazzio et al. (2010)

to engage in imaginary role-play. Thiessen et al. (2009) evaluated the revised manual with four university students, and the participants showed greater improvements in DTT accuracy, as measured by the DTTEF, compared to the previous two studies of the first version of the manual. Moreover, the participants showed good generalization when applying DTT to teach the three tasks to a child with autism. Thomson et al. (2012) evaluated the revised manual in a modified multiple-baseline design across four pairs of newly hired tutors in an ABA program for children with autism. Three of the eight tutors met mastery on the DTTEF after studying the manual. The other five tutors met mastery after studying the manual and then watching a 17-minute video (Fazzio, 2007) of an expert in DTT modeling the teaching of a task.

The third version of the manual by Fazzio and Martin (2009) included new topics, a total of 12 chapters, and additional study questions. Boris et al. (in press) examined the new manual in a modified multiple-baseline design across three university students. It required an average of 6 hours and 41 minutes to master the manual. After mastering the manual, two participants met mastery criterion on the DTTEF while teaching a confederate role-playing a child with autism, and one participant required a feedback and demonstration session to meet mastery. All three participants showed good generalization of DTT when teaching a child with autism.

In the study by Boris et al. (in press), 1 of 3 participants required a demonstration and feedback session, and in the study by Thomson et al. (2012) with tutors, 5 of 8 tutors required video demonstrations to show mastery. To address these findings, Fazzio and Martin (2011) revised the manual so that it now consists of 65 pages, 12 chapters, 111 study questions, and it included the addition of video demonstrations of an expert applying DTT that the reader observes after Chapters 8, 10, and 11. The reader is prompted to stop and attend to the video demonstrations, then to self-practice the material with an imaginary client.

As stated earlier, there is high demand for rapid and effective methods to teach individuals to apply DTT to children with autism. One of the conclusions of the Thomson et al. (2009) review of studies that evaluated training packages for teaching individuals to deliver DTT to children with autism was that there was considerable need for research on self-instructional strategies for teaching individuals to conduct DTT. As stated previously, the initial self-instructional manual by Fazzio and Martin (2006) has gone through several revisions based on research to evaluate its effectiveness. In this study, we evaluated the fourth version of the Fazzio and Martin (2011) self-instructional package that combines a self-instructional manual and video demonstrations, with newly hired tutors at an ABA program for children with autism.

Method

Participants

Prior to the research, ethical approval was received from the University of Manitoba Psychology/Sociology research Ethics Board. Participants consisted of 13 newly hired tutors (11 female, 2 male) recruited from the St. Amant ABA Preschool Program for Children with Autism, a Manitoba government-funded home-based intervention program in which one-on-one teaching sessions are conducted five days per week in the clients' homes by tutors. The tutors were provided with an option of participating in the study when they were initially hired. It was made clear that participation was voluntary and would in no way affect their status at their job. Eleven of the 13 participants had attended a post-secondary institution. Three participants had prior experience with children with autism; one participant had a family member with autism, one provided respite services, and the other volunteered. One participant had prior exposure with DTT through canine training. All but the last phase of the study were conducted in a private testing room at St. Amant, a community and residential treatment center for individuals with developmental disabilities. The last phase of the study was conducted in the home of a child with autism, participating in the ABA program, whose parents consented for their child to participate in the study.

Materials

Baseline. Participants were provided with three, one-page summaries of procedural steps to teach each task: (a) pointing-to-named pic-

tures, (b) identity matching, and (c) motor imitation, to a child with autism (see Thiessen et al., 2009). They also received a data sheet for each task in order to record the responses of the confederate role-playing a child with autism, picture flash cards to teach the tasks, edibles for reinforcement, and a pen. A scoring sheet, the Discrete-Trials Teaching Evaluation Form (DTTEF; Fazzio, Arnal, & Martin, 2010) was used to record the participant's DTT performance (see Figure 1). Materials were identical across participants.

Training. Participants received a 65-page self-instructional manual on conducting DTT (Fazzio & Martin, 2011), blank paper, a pen, a highlighter, and photocopies of the exercises and data sheets that would be used for self-practice after Chapters 8, 10, and 11. Additionally, a computer was provided in order to videotape the tutors' self-practice routine and so the participant could view the video demonstrations. Part A of the video demonstrated how to prepare a teaching session. Part B demonstrated managing antecedents and consequences for correct responses on DTT trials. Part C demonstrated most-to-least prompt fading. Part D demonstrated managing antecedents and consequences for incorrect responses. There were two mastery tests administered to the participants. The first was based on Chapters 1 through 6 (Part 1). The second was based on Chapters 7 through 12 (Part 2). Each test consisted of 10 questions that were randomly selected from those that were boldfaced in the manual. Materials were identical to those in Baseline, and were identical across participants.

Post-training. Participants received a one-page outline of the components of the DTTEF, a data sheet for each task in order to record the responses of the confederate role-playing a child with autism, picture flash cards to teach the tasks, edibles for reinforcement, and a pen. The DTTEF was used to score the participant's DTT accuracy, and this session was also videotaped. Materials were identical to those in Baseline and identical across participants.

Generalization. The participant who was assessed at teaching a child with autism received an outline of the 20 components of the DTTEF, a pen, data sheet, and stimuli for the respective assessment. Stimuli used in current ABA programming were used in the generalization phase. For the matching task, toy cars were used, and the child was required to match a sample toy car to an array of three toy cars. For the imitation task, the exemplars consisted of the vocal instruction "do this" to imitate moving a plastic cup, zipping up a zip-lock bag, and jumping up and down.

Procedure

To evaluate the effectiveness of the 2011 DTT self-instructional package, we used a modified multiple-baseline design across a pair of participants, replicated across six pairs. An AB design was used with one participant.

Phase 1: Baseline. A participant read three, one-page summaries of procedural steps to teach three tasks to a child with autism: (a) pointing-to-named pictures options, (b) identity matching, and (c) motor imitation. The tasks were selected from the curriculum for the St.Amant ABA Preschool Program for Children with Autism and were the tasks used in the previous studies evaluating the self-instructional manual. After reading the summary steps for a task, then the participant attempted to teach 12 trials of that task to a confederate role-playing a child with autism. They continued this process until all three tasks were attempted. The confederates were trained student research assistants. They followed a script for each task indicating how to respond to the instruction, what prompting level was required in order to respond, and if the confederate was to be attending or not attending to the instructor. In order to reflect a DTT session with a child with autism, the confederate's script contained responding errors (e.g., pointing to the incorrect picture), and attention deficits (e.g., looking away from the instructor or tapping the table). The orders of the tasks that the tutor taught to the confederate were randomized for each participant and across phases. A participant's DTT accuracy was evaluated using the Discrete-Trials Teaching Evaluation Form (DTTEF; see Figure 1).

Phase 2: Training. A participant was asked to study Chapters 1 through 6 (Part 1). The participant was presented with two types of study questions. The first type prompted the participant to learn background information about

ABA. The second type, presented in bold font, required the participant to learn material that is essential to learn in order to successfully conduct DTT. The participant was prompted to study and learn the boldfaced questions as they were encountered, and that they were to be tested on those questions after completion of Chapter 6. After each chapter, the manual prompted the participant to go back and retest himself/herself on the boldfaced questions, and to be sure that the questions could be answered with 100% accuracy before proceeding to the next chapter. After the participant indicated that he/she was finished studying Chapters 1 through 6, then he/she took a mastery test of the boldfaced questions. There were 40 boldfaced questions presented throughout Chapters 1 through 6, and 10 were randomly selected for the test. The test was graded upon completion, and to obtain mastery, the participant was required to answer each question correctly. If 100% accuracy was not obtained, then the participant was asked to restudy the material for the incorrect question(s) only, and rewrite the answers to those question(s).

Next, the participant studied and mastered Chapters 7 through 12 (Part 2). The same procedure as Part 1 occurred for Part 2. After mastering the study questions in Chapter 8, the participant was prompted to watch Part A of a video demonstration on preparing to conduct a teaching session. After watching the demonstration, the participant was prompted to "stop and practice" the material learned where he/she was prompted to make stimuli with paper provided, and to role-play the six components of preparing to conduct a DTT teaching session using a datasheet provided. The manual instructed the participant to use their imagination, and role-play the 6 components, and on a data sheet, check off each component as it was completed. The participant was left in the testing room, and instructed to engage in the self-practice activities as they were encountered in the manual, and was instructed to use the data sheets provided to record his/her self-practice activities. After mastering the study questions in Chapter 10, the participant was prompted to stop and watch Part B of the video on managing antecedents and consequences for correct responses, and Part C of the video, a demonstration of most-to-least prompt fading. After watching the videos, the participant was prompted to engage in a role-play activity provided in the manual involving the components of the DTTEF that had been covered, and to score his/her performance using the DTTEF. The participant was prompted by the manual to record eight trials of the matching task with an imaginary child. Furthermore, the participant was prompted by the manual to rate his/her performance using a data sheet provided. The fourth video demonstration was presented after mastery of Chapter 11 study questions, where the participant was prompted to watch Part D of the video, which demonstrated managing antecedents and consequences for incorrect responses. The participant was prompted to stop and practice and role-play DTT trials of teaching a pointing-to-named pictures task, and to score his/her performance. When completed, he/she was prompted to repeat the exercise for teaching imitating a simple-actions task, and then to proceed to Chapter 12. When the participant was finished, he/she was tested on Part 2 of the manual. There were 35 boldfaced questions in Chapters 6 through 12, and 10 were randomly selected for testing. The test was graded upon completion, and to obtain mastery, the participant needed to answer each question correctly. If 100% accuracy was not obtained, then the participant was asked to restudy the material for the incorrect question(s) and rewrite the answer to the question(s).

Phase 3: Post-training assessment. A participant attempted to teach a confederate role-playing a child with autism 12 trials of each of the same three tasks that were attempted at Baseline (pointing-to-named pictures, identity matching, and motor imitation). The participant was provided with a summary sheet containing the 20 components of the DTTEF. The DTTEF was used to record the participant's DTT performance.

Phase 4: Generalization. Permission was received for generalization sessions to be conducted with only one child with autism, so that only Participant 2, who was assigned to work with that child, participated in this phase. Participant 2 was required to achieve 80% DTT accuracy in Post-training on a task in order to teach that task in the generalization phase, and did so for identity matching and motor imita-

tion. Participant 2 was assessed in a generalization phase 32 days following the Post-training assessment.

Inter-Observer Agreement (IOA) and Procedural Integrity (PI). DTT accuracy was assessed during Baseline, Post-training, and one Generalization phase. The primary researcher scored all of the sessions using the DTTEF, and a second trained observer scored 42% of the videos, also using the DTTEF. An agreement occurred when the observer and the experimenter scored an item the same (i.e., as correct or incorrect). A disagreement occurred when an item was scored differently (i.e., one observer scored the item as correct while the other scored the item as incorrect). Percent agreement was computed for each scored session by dividing the number of agreements by the number of disagreements plus agreements, and multiplying by 100% (Martin & Pear, 2011). The mean percent agreement was 95%, ranging from 76% to 100%. Although a score of 76% agreement is not high, it occurred once during Baseline where it is more difficult to determine what the participant is doing and when trials begin and end. Without this outlier, agreement ranged from 88% to 100%, which is well within the acceptable range (Martin & Pear, 2011).

To ensure that the experimenter followed the procedure correctly, a script was used during all sessions. There were specific scripts for each phase of the study. The observer recorded whether the procedure was followed as planned using the appropriate procedural reliability data sheet for the phase of the study. For a phase, PI was determined by computing the percent of steps that were administered correctly during that session. PI was completed for 32% of the sessions, and averaged 100%. As the confederate was following a script during the sessions, confederate PI was also taken for 33.3% of the sessions. The confederate's PI averaged 95%, ranging from 82% to 100%.

Results

Participants required an average of 3 hours and 56 minutes (*SD* = .72) to master the manual, ranging from 3 hours and 15 minutes to 5 hours and 15 minutes. This included study time, taking the two mastery tests, self-practice activities, and watching the video demonstrations. On mastery test 1 on the study questions, participants averaged 97.6% (*SD* = 4.39), ranging from 90% to 100%. On mastery test 2, participants averaged 98.4% (*SD* = 3.76), ranging from 90% to 100%.

The participants' percent correct DTT per session is shown in Figures 2 and 3. The data were analyzed in two ways, first by visual inspection of the graphs as described by Martin and Pear (2011), and second by a paired-samples *t*-test of the average Baseline score versus the average Post-training score. In terms of visual inspection, as can be seen in Figures 2 and 3, the Baseline scores remain relatively stable across sessions. Baseline performance improved just slightly over time only for Participants 3, 9, and 13. Comparing Baseline and Post-training data points, scores increased immediately and sizably following the treatment package, with the exception of Participant 12. This provides strong evidence that improvement in performance was due to the self-instructional package for 12 of the 13 participants.

In terms of a statistical analysis of mean Baseline performance versus mean Post-training performance after exposure to the self-instructional package, the average increase in DTT accuracy was 39.3% (*SD* = 12.89; Baseline, 46.2%; Post-training, 85.5%). A paired samples *t*-test was conducted to determine if the differences in scores from Baseline (M = 46.2, SD = 6.4) and Post-training (M = 85.5, SD = 9.1) were statistically significant. Results indicated that the improvements from Baseline to Post-training were statistically significant, t (12) = 10.9, $p < .001$.

Overall, 9 of the 13 participants met the mastery criterion of 80% DTT accuracy on all three tasks in Post-assessment. Two participants met criterion on two of the three tasks, one participant met the criterion on one task, and Participant 12 did not meet criterion on any of the tasks. Comparing the three tasks assessed in Baseline and Post-training (identity matching, pointing-to-named pictures and motor imitation), Figure 4 reveals that the mean DTT accuracy across the tasks was very similar, suggesting that the three tasks were of approximately equal difficulty.

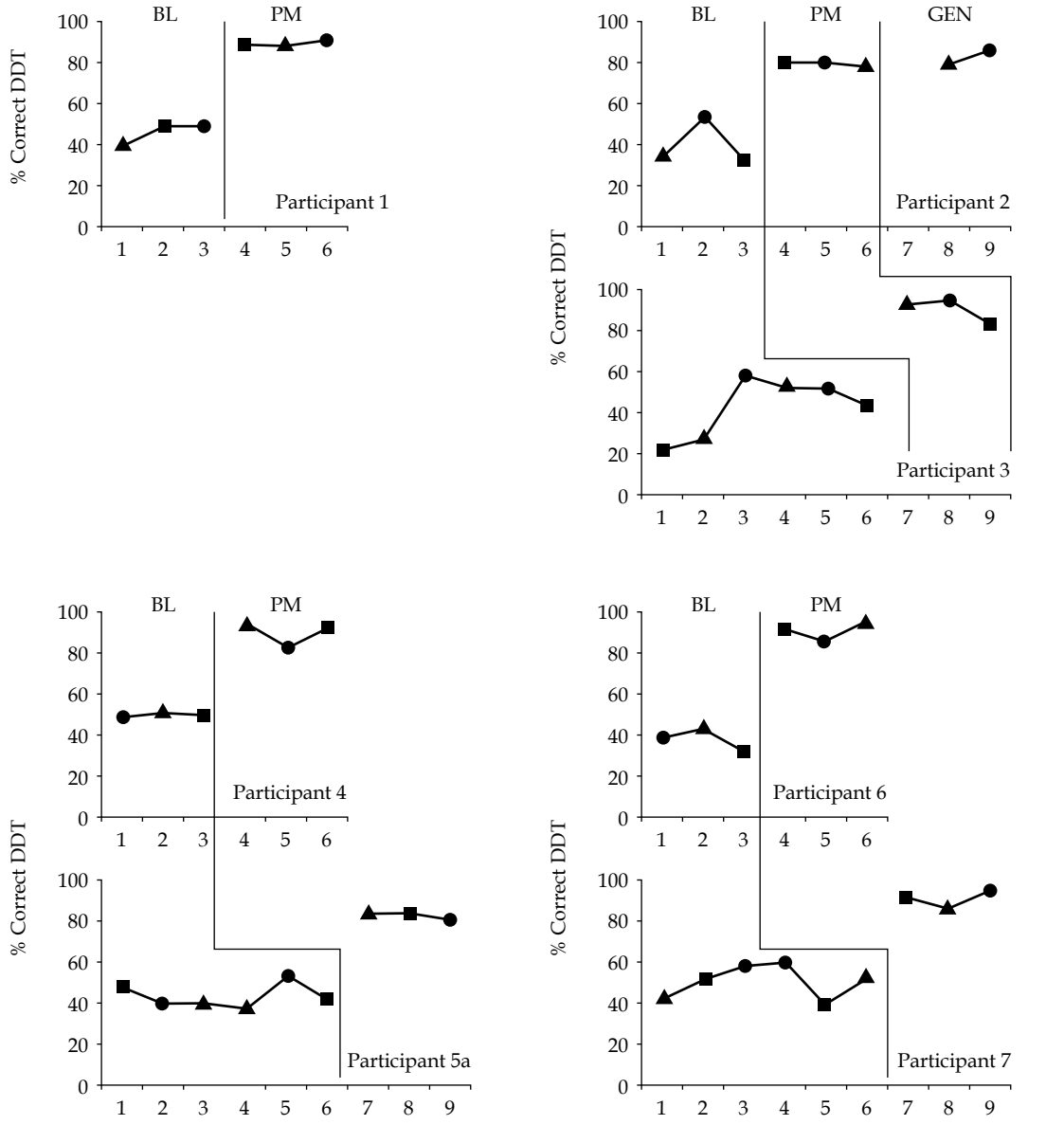

Figure 2. Percent of DTT items performed correct on the 20-item DTTEF (matching ▲, pointing ■, imitation ●) for Participants 1–7; Baseline (BL), Post-Manual (PM), and Generalization (GEN)

Generalization

Due to a lack of successful recruitment of the children with autism to which the participants had been assigned to work with, only one generalization assessment was completed. Participant 2 partook in the generalization phase, teaching identity matching and motor imitation tasks on which she had achieved at least 80% DTT accuracy during the Post-training assessment. In Generalization, DTT accuracy was 80.1% for the matching task, and 86.4% for the imitation task.

Self-Practice Activities

As described previously, the self-instructional manual prompted participants to engage in imaginary role-playing of DTT with an imaginary client after watching each of parts a, b, and c of the video. Self-practice activities were videotaped and scored using the DTTEF.

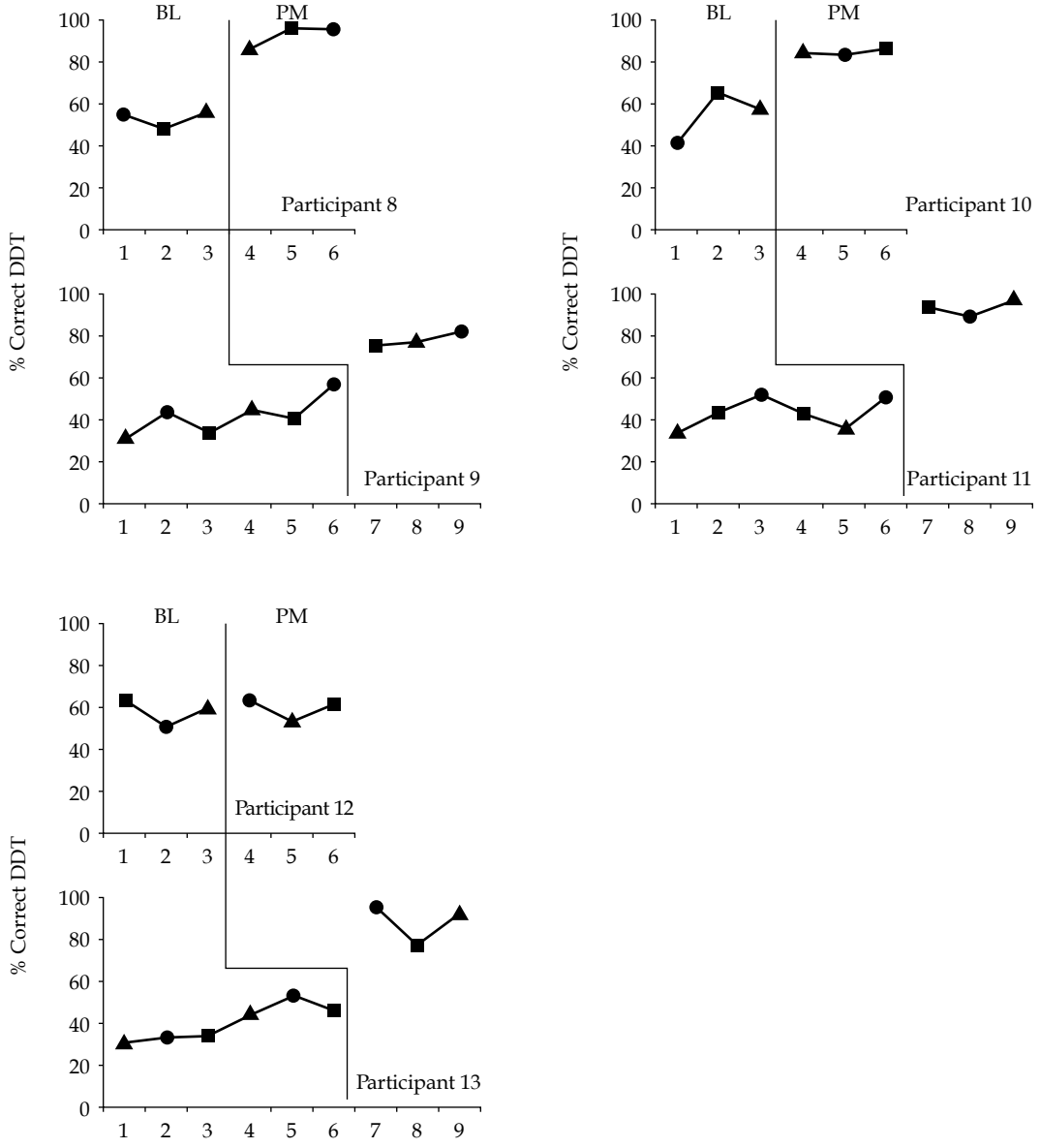

Figure 3. Percent of DTT items performed correct on the 20-item DTTEF (matching ▲, pointing ■, imitation ●) for Participants 8-13; Baseline (BL), and Post-Manual (PM)

The way in which tutors interpreted and followed instructions varied, as did how they engaged in the activities. In the first self-practice exercise, Participants 1, 4, 5, 6, 7, 9 and 11 scored 100% accuracy when role-playing the six components on how to conduct a teaching session. Participant 8 scored 80% accuracy, and Participant 10 scored 83% accuracy. Participants 2, 12, and 13 did not engage in the activity, but sat quiet and appeared to be thinking. These participants may have been visualizing the activities, as opposed to physically acting out the tasks. Participant 3 spoke into the camera and attempted to verbally indicate what she would do to conduct a teaching session by describing procedural steps.

The second self-practice activity required the tutor to engage in role-playing the identity matching task. Participant 1 scored 92.8% accuracy, Participant 4 scored 75% accuracy, Participant 5 scored 69.6% accuracy, Participant 6 scored 63% accuracy, Participant 7 scored 68% accuracy, Participant 8 scored 66.7% accu-

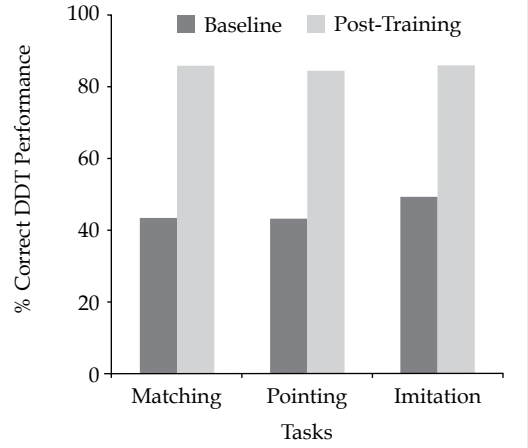

Figure 4. Average DTT accuracy across Tutors 1–13 represented by task (matching, pointing, and imitation) across phases (Baseline and Post-Training)

racy, and Participant 10 scored 65% accuracy. Participants 2, 12 and 13 did not fully engage in the activity; it appeared that they sat there thinking and did not perform the trials. Participants 9 and 11 did not record their activity. Like the previous activity, Participant 3 verbally indicated what she would do during a matching task.

The last self-practice activity required tutors to role-play all the components of the DTTEF for the remaining two tasks, pointing-to-named objects, and motor imitation. For pointing-to-named pictures, Participant 1 scored 82.5% accuracy, Participant 5 scored 72.2% accuracy, Participant 7 scored 77.5% accuracy, Participant 8 scored 66.3% accuracy, and Participant 10 scored 81% in accuracy. Participant 3 spoke into the camera, Participants 2 and 11 chose not to record the activity, and Participants 4, 6, 9, 12, and 13 sat in silence and appeared to be thinking. For the second component of Self-practice exercise 3, participants were instructed to role-play an imitation task. Participant 1 scored 89.9% accuracy, Participant 7 scored 66.7% accuracy, Participant 8 scored 81.3% accuracy, and Participant 10 scored 78% accuracy. Participant 6 engaged in hand motions. Participants 2, 11, 12, and 13 did not record the activity. The remaining participants (3, 4, 5, and 9) sat in silence.

Pearson correlations were computed to compare the DTTEF scores of the matching, pointing, and imitation self-practice activities to the DTTEF scores of the matching, pointing, and imitation teaching tasks during Post-training for the participants who completed all three self-practice activities. These participants consisted of Participant 1, Participant 7, Participant 8, and Participant 10. The results were not statistically significant, $p > .05$ (Participant 1, $r = .25$; Participant 7, $r = .026$; Participant 8, $r = .411$; Participant 10, $r = .05$).

Social Validity

Social validity questionnaires were completed by all participants. There were four items to be rated concerning the goals of the study, two items concerning the procedures, and four items concerning the results. Participants rated the items on a scale of 1 to 5 (1 = *disagree* and 5 = *agree*). Participants rated the goals of the study to be of importance, with an average rating of 4.98 for Items 1-4. They found the procedures, specifically the manual, helpful and effective in teaching them to conduct DTT, with an average rating of 4.85 (*SD* = .38) for Item 5. Participants believed that the video demonstrations were useful, with an average rating of 4.92 (*SD* = .28) for Item 6. Participants rated the results of the study to be positive and stated that they would recommend this training opportunity to other individuals who work with children with autism, with an average rating of 4.94 each of items 7-10 (*SD* = .28).

Discussion

Overall, the self-instructional package (Fazzio & Martin, 2011) was found to be effective in improving individuals' accuracy in implementing DTT with a confederate role-playing a child with autism. This package produced a substantial and statistically significant increase in DTT performance (a 39.5% increase) and the training took a short amount of time to complete (an average of 3 hours and 56 minutes). These results were larger than those obtained in studies evaluating previous versions of the manual with no facilitator components (e.g., Arnal et al., 2007; Fazzio et al., 2009; Thiessen et al., 2009; Salem et al., 2008). Previous studies relied on a method of feedback, demonstration, or modeling from the experimenter (e.g., Fazzio et al., 2009; Boris et al., in press). However, this required additional time and resources of an available facilitator, which defeated the purpose

of a self-instructional tool. Unlike these previous studies, the current package incorporated video demonstrations and self-practice activities into the manual. Therefore, the current study possessed a more 'self-instructional' approach to teaching DTT, and used fewer external resources than previous evaluations of the manual. Thus, the self-instructional package was not only effective, but also efficient, and economical as a strategy for teaching tutors to conduct DTT.

Several limitations of this study should be noted. First, only one generalization assessment was conducted due to lack of successful recruitment of the children with autism to which the tutors had been assigned to work with. Second, although it was found that Participant 2's DTT accuracy remained stable from Post-training to the generalization assessment, other methods of training occurred between that time. Third, Participant 12 showed almost no improvement from Baseline to Post-training. Fourth, the way in which participants participated and engaged in the self-practice activities differed and only four participants followed the instructions entirely and engaged in all self-practice activities. Therefore, it is unclear of the degree to which the self-practice activities had an effect on overall DTT performance, and if they are a beneficial component of the self-instructional package.

Future research is needed to demonstrate that successful DTT of a confederate role-playing a child with autism, after studying the current self-instructional package, will generalize to the teaching of children with autism. The self-instructional package should also be evaluated for training parents of children with autism to conduct DTT. Furthermore, due to the fact that the majority of the participants in the current study did not engage in the self-practice exercises adequately, future research should examine ways to improve participants' use of the self-practice exercises or examine if they contribute to the efficacy of the self-instructional package. Overall, the findings of the current study have positive implications for a variety of agencies that serve children with autism that are required to rapidly train staff, and where turnover rates tend to be high.

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Key Messages From This Article

People with disabilities: The use of the self-instructional package can train individuals to teach new tasks to persons with autism.

Professionals: The self-instructional package is an effective tool to train individuals to conduct discrete-trials teaching.

Policymakers: It is important to be informed on the methods used to effectively teach individuals to apply discrete-trials teaching to children with autism in early intervention programs. This paper provides information on an effective method that can be used when training new staff.

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