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## Evaluation of a self-instructional package on discrete-trials teaching to parents of children with autism

Kristen L. Young<sup>a,\*</sup>, Ashley L. Boris<sup>a</sup>, Kendra M. Thomson<sup>a</sup>, Garry L. Martin<sup>a</sup>, C.T. Yu<sup>a,b</sup>

<sup>a</sup> Department of Psychology, University of Manitoba, Winnipeg, Manitoba, Canada R3T 2N6

<sup>b</sup> St. Amant Research Centre, Winnipeg, Manitoba, Canada R2M 3Z9

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### ABSTRACT

The purpose of this research was to evaluate a self-instructional package (Fazio & Martin, 2007) to train parents of children with autism to conduct discrete-trials teaching (DTT). In Study 1, we investigated the effectiveness of a self-instructional manual and a self-instructional video for teaching five parents of children with autism to correctly apply DTT to teach three tasks to a confederate who role-played a child with autism, and to their own child when possible. Following an average of 4.76 h of training, the package produced a strong effect with three parents and a weak effect with two parents. In Study 2, we investigated the effectiveness of the self-instructional manual combined with role-playing and feedback, plus the self-instructional video, for teaching an additional five parents. Following an average of 4.68 h of training, all five parents demonstrated large, clinically significant gains in their performance of DTT, both with a confederate as well as with their own child, with a minimal investment of one-on-one instructor time. These results suggest that the training package in Study 2 has considerable potential as an effective, efficient and acceptable method of training parents of children with autism to apply DTT.

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Intensive behavioral intervention based on applied behavior analysis (ABA) has been recognized as the treatment of choice for children with autism (Department of Health, 1999; Matson & Smith, 2008; also see the treatment section of Matson & Sturmey, 2011). A widely used method for conducting ABA training sessions is known as discrete-trials teaching (DTT). DTT involves the presentation of training trials in rapid succession during a teaching session, with each trial including an antecedent provided by the instructor, a response from the child, and a consequence applied by the instructor. Currently, there is a great demand for efficient and effective training procedures to teach instructors and parents to conduct DTT with children with autism.

Three studies have been used to evaluate the impact of instructing parents of children with autism to conduct DTT on parental and child behavior (Crockett, Fleming, Doepke, & Stevens, 2007; Koegel, Glahn, & Nieminen, 1978; Lafasakis & Sturmey, 2007). The results of these studies suggest that a variety of instructional methods to teach DTT to parents, including combinations of behavioral skills training, videotaped and in vivo modeling of DTT, role-play, practice with children with autism, and feedback on their performance are effective at improving parent's correct implementation of DTT procedures, and at improving correct responding by children with autism. However, these studies involved lengthy training time and/or one-on-one instructor training, suggesting the need for more cost-effective methods of delivery, such as those involving self-instructional formats.

\* Corresponding author at: Selkirk Mental Health Centre, Box 9600, Selkirk, MB, Canada R1A 2B5. Tel.: +1 204 482 1688.

E-mail address: [umcam224@cc.umanitoba.ca](mailto:umcam224@cc.umanitoba.ca) (K.L. Young).

Previous research has demonstrated that self-instructional manuals (e.g. Miltenberger & Fuqua, 1985) plus videos (Kratowill, 1989) are effective means of teaching behavioral assessment and consultation interviewing skills to graduate students. In a recent study, Thomson et al. (2012) evaluated a self-instructional manual (Fazio & Martin, 2007) and video (Fazio, 2007) for teaching DTT to newly hired ABA tutors working with children with autism. The results of that study demonstrated that the self-instructional training package was a relatively effective, rapid form of teaching tutors to apply DTT, both while working with confederates role-playing children with autism, and while working with children with autism. The purpose of the present research was to extend this previous research by evaluating the effectiveness of the Fazio-Martin self-instructional package for teaching parents of children with autism how to apply DTT.

## 1. Study 1

### 1.1. Method

#### 1.1.1. Participants and setting

Five mothers of children with autism, who were on a wait-list to receive services from the St. Amant ABA Preschool Program for Children with Autism, or who had recently been enrolled to receive services but had not received specific ABA training, participated. The St. Amant program is a government funded program in Winnipeg, Manitoba, Canada. The participant's educational backgrounds ranged from having completed high school to having completed a four-year university degree. None of the parents who participated reported previous experiences with specific training on ABA or autism.

Three of the parents included their children with autism in the present research, and two others chose not to due to behavioral difficulties of the children. All three children were male, and were 5–6 years-old. This research was conducted within participants' homes.

#### 1.1.2. Materials

During the baseline phase of the research, parents were provided with three one-page summaries describing basic procedures for teaching three typical training tasks, and accompanying data sheets. The training tasks consisted of an auditory-visual discrimination of pictures of common items task ("pointing"), a visual-visual matching task ("matching"), and a motor-imitation task ("imitation"). For a detailed description of the tasks, see Thiessen et al. (2009). For the self-instructional phase of the study, participants were provided with a 37-page self-instructional manual on DTT (Fazio & Martin, 2007). The manual consists of a description of the DTT procedure, separated into sections, with study questions for each section, and practice components that prompt readers to stop and practice, or imagine performing, the DTT components. Some participants were also shown a 17-min training video (Fazio, 2007). The video consisted of a brief review of information contained in the self-instruction manual, and a demonstration of several trials of DTT by an experienced instructor teaching a task to a typically developed child role-playing a child with autism. For later data analysis, sessions with parents were videotaped, and time spent by parents engaged with study materials was measured using a stopwatch.

Teaching materials included one set of three pictures of items used for Task 1, and two sets of matching pictures for Task 2. Both tangible and edible reinforcers were used in teaching sessions. During training sessions, parents were also provided with several pens, pencils, a highlighter, and scrap paper.

#### 1.1.3. Target behaviors and data collection

Before and after the self-instructional training, participants were asked to attempt to teach three tasks, one task per session, to a research confederate who role-played a child with autism. Prior to baseline training sessions, parents were provided with a one-page summary of each task that they were to teach. Following the self-instructional training, they were provided with a two-page summary of DTT components that was contained in the back of the DTT self-instructional manual, which was very similar to the information contained in Fig. 1. Analysis was conducted on parents' accuracy in conducting DTT, based on the Discrete Trials Teaching Evaluation Form (DTTEF; Fazio, Arnal, & Martin, 2007; see Fig. 1). The DTTEF is a 21-component checklist that is based on the DTT self-instructional manual, and has been shown to have high face validity, high interobserver reliability, significant discriminant validity and high convergent validity for live and videotaped scoring (Babel, Martin, Fazio, Arnal, & Thomson, 2008; Jeanson et al., 2010). An observer recorded parents' DTT performance on the DTTEF for 12 trials per task for three tasks in all phases of the study. Twenty of the total items were scored as correct, incorrect, or not applicable, and one item ("Fade prompts across trials") was scored as yes or no for each parent. For each of the teaching sessions items 1–5 and 21 were scored once, and items 6–20 were scored for each teaching trial. Sessions were videotaped, so that reliability checks (as described later) could be scored later from the video.

During experimental phases, following assessment sessions with the confederate, participants were asked to attempt to teach the same three tasks to their own child using the summaries of each task. Analysis and scoring was conducted as above.

#### 1.1.4. Experimental design and phases

A modified multiple-baseline design with a pair of participants, and an ABC single-case design with replication across three parents was used in order to assess the effectiveness of the intervention on parents' accuracy in applying the correct teaching procedures. The multiple-baseline design in this study was modified through the use of intermittent probes of the

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