

January 01, 2010

Improving parent implementation of discrete trial teaching using video self-monitoring

Daniel Knight
Northeastern University

Recommended Citation

Knight, Daniel, "Improving parent implementation of discrete trial teaching using video self-monitoring" (2010). *Applied Behavioral Analysis Master's Theses*. Paper 19. <http://hdl.handle.net/2047/d20000231>

This work is available open access, hosted by Northeastern University.

Running Head: Improving Parent Implementation of Discrete Trial Teaching

Improving Parent Implementation of Discrete Trial Teaching

Using Video Self-monitoring

Daniel Knight

The New England Center for Children

Northeastern University

Improving Parent Implementation of Discrete Trail Teaching Using Video

Self-monitoring

Table of Contents

A. Abstract.....	2
B. Introduction	
1. Parent training.....	3
2. Self-monitoring.....	6
3. Purpose.....	7
C. Method	
1. Participants.....	7
2. Setting and materials.....	7
3. Procedure.....	7
D. Results.....	9
E. Discussion.....	11
F. References.....	13
G. Figure captions.....	15
H. Figures.....	16

Abstract

Two parents were taught to implement discrete trial teaching using a combination of written and verbal instruction and were asked to run trials targeting a ready for instruction response with their children. Video self-monitoring was then used to increase performance. Accuracy of implementation increased significantly for both parent participants following video self-monitoring, resulting in increased performance of the child participants as well. Although performance increased when teaching a ready for instruction response, generalization did not occur when parents were asked to implement a novel program. Reimplementation of video self-monitoring again resulted in dramatic effects and increased performance to previous levels. Implications of this study indicate it may be possible to increase accuracy of implementation of discrete trial teaching without providing direct feedback from a trained therapist.

Improving Parent Implementation of Discrete Trial Teaching Using Video Self-Monitoring

Discrete trial teaching has been shown to be an effective behavioral treatment for young children diagnosed with autism spectrum disorders. Through repetition and reinforcement of targeted skills, children can be taught a variety of adaptive behaviors. Discrete trial teaching is often utilized by trained ABA therapists to teach children receiving early intervention services. Research has also indicated that parents may act as therapists and implement discrete trial teaching techniques to teach their children and that they may be effective in teaching a variety of targeted skills (Lafasakis & Sturmey, 2007). Although it is important to include parents in the treatment and education of their children, it is also important to maintain high levels of treatment integrity, regardless of the context in which it is being applied. Treatment integrity is an identified necessary component of good applied behavior analysis and must be promoted throughout the implementation of any behavioral treatment program to ensure success, as indicated by Baer, Wolf, and Risley (1987) as well as others. Increasing treatment integrity when parents implement behavior programs or work on skill acquisition with their children is one way of promoting consistency across different environments and with different people, also promoting generalization (Baer et al., 1987; Gresham, Gensle, & Noel, 1993; Peterson, Homer, & Wonderlich, 1982).

Parent training has been shown to be effective through a number of training techniques across several different skills associated with increasing the independence of those with autism spectrum disorders. For example, Cooper, Wacker, Sasso, Reimers,

and Donn (1999) did a study to assess parent implementation of functional analyses in an outpatient clinic using a multielement design. Results of functional analyses with their children indicated higher rates of inappropriate behavior in one condition over others and researchers recommended treatments based on those results. Implementation of seven of the eight intervention packages resulted in significant decreases in the children's behavior. These results indicate that it is possible for parents to act as therapists and implement procedures based on behavior analytic principles to assess and successfully reduce problem behavior. Although the results indicate parents are capable of implementing procedures in the presence of trained experimenters and with direct instruction from those experimenters, further examination could be conducted to assess the effects of experimenter instruction on parent performance (Cooper et al., 1990).

Another study done by Koegel, Glahn, and Nieminen (1978) assessed the effects of parent training on child behavior using a brief demonstration of how to teach using behavior analytic techniques. Brief demonstration included verbal instruction by a graduate student in a specific skill set. The results of the study showed that brief demonstration of specific skill acquisition techniques was sufficient in teaching procedures to parents but that the techniques used to increase behavior did not generalize. In a second experiment, a generalized training program was implemented, including videotaped demonstrations of a variety of skills and techniques used to teach new behaviors and, unlike the brief demonstration method, resulted in the generalization of acquired skills. Ducharme and Feldman (1982) were also successful in demonstrating generalization of skills taught. Staff were trained to teach self-care routines to clients with developmental disabilities using a similar general case procedure with simulated clients

(Koegel et al.,1978; Ducharme et al., 1992).

Behavioral skills training has been shown to be an effective means of teaching a variety of skills through instruction, modeling, rehearsal, and feedback as indicated by several studies (Sarokoff and Sturmey, 2004; Lavie and Sturmey, 2002). In a study by Lafasakis & Sturmey (2007) it has also been shown to be effective in teaching discrete trial teaching techniques to parents. A multiple baseline across participants design was used to show the effects of behavioral skills training on both parent and child performance. Written instructions on how to implement discrete trial teaching were provided during baseline and both parent and child performance were measured. Behavioral skills training was then implemented in which the parents were taught using a combination of instruction, modeling, rehearsal, and feedback and both parent and child performance were again measured. Results showed improvements in both parent and child performance for all participants indicating behavioral skills training as an effective means of teaching parents discrete trial teaching techniques. One limitation to this study was the inclusion of an extended baseline, in which many parent implementation errors occurred. Performance increased following training but with a mean of around 70% accuracy, perhaps as a result of the occurrence of so many errors.

Methods for training parents do not necessarily need to be in formal instructional settings or in self teach models as indicated by a study done by Neef (1995) that assessed the effects of parent training by peers. The study compared the effects of a pyramidal model of training parents by peers with training by a professional. A multiple probe design showed that the effects of training by both methods were similar and resulted in acquisition, maintenance, and generalization, indicating training by peers may be an

effective alternative to training by professionals. This is important because professionals often are not available to train parents and other alternatives may be necessary (Neef, 1995).

One method of feedback that may be beneficial when direct feedback from professionals is not available is self-monitoring of performance. Self-monitoring, by definition, involves an individual determining the presence of a target behavior and is usually followed by self-recording of the behavior (Harris, 1986). It has been used to increase performance across a number of skills and contexts. For example, Petscher and Bailey (2006) used self-monitoring in combination with training and prompting to increase staff performance when implementing student behavior guidelines in a classroom for children with disabilities. Staff used a self-monitoring form at the end of each shift to record the percentage of opportunities they believed they had identified the need to respond to a behavior and had done so correctly. Results of the study indicated significant improvements in performance for two of the three areas targeted on the self-monitoring form (Petscher et al., 2006).

Video self-monitoring has been shown to be an effective means of increasing staff performance implementing discrete trial instruction as indicative of a study done by Belfiore, Fritts, and Herman (2008). Staff previously trained in implementing discrete trial training, who all scored low on a performance checklist participated. Staff were videotaped while implementing discrete trial training with a student and were then asked to watch the video and score it using the performance checklist provided. Participants marked a plus if the behavior was observed or a minus if it was not observed. As a result of implementation of video self-monitoring performance increased for all participants and

was maintained during a follow up session for 2 of the 3 participants. A booster session where video monitoring was again implemented was held with the third participant and performance levels again increased. A unique aspect of the study was that it used the performance checklist to evaluate behavior during baseline and deficits in performance were identified as a result. This way errors could be identified and corrected. Another unique aspect of the study was that self-monitoring was used rather than other methods requiring a third party as the mechanism for providing corrective feedback, also limiting the time and resources required for teaching new skills.

Follow-up with parents implementing discrete trial training can be difficult. The purpose of this study will be to assess the effects of video self-monitoring on parent implementation of discrete trial training.

Method

Participants

Two parent and child dyads were included in the study. Parent participants were two mothers, Jan and Emily, who had limited experience with behavior analysis or its use in the treatment of autism spectrum disorders. Both parents had the opportunity to observe trained ABA therapists conducting discrete trials with their children in their home. Child participants were two two-year-old boys, Michael and Jack, who were diagnosed with autism spectrum disorders and were receiving full time early intervention services in their home.

Setting and Materials

Sessions were run at the participant's home and all discrete trial teaching sessions were conducted where the child normally received ABA services. Materials included a table and two chairs for the parent and child participants, a clipboard with a data sheet for the parent to take data, and relevant reinforcers. A video camera was also used to record sessions for implementing self-management techniques and for scoring sessions.

Procedure

Dependent measures. A concurrent multiple baseline across participants design was used in the study to assess the effects of video self-monitoring on performance. Dependent measures included parent performance implementing discrete trials across two to three different programs as well as child performance on those programs. Multiple programs were used to test for generalization of acquired skills. Ready for instruction was chosen as the first program to be run for both participants as it is typical to teach session behavior to young children before attempting to teach other targeted skills. Programs included for generalization were answering social questions and sequenced gross motor imitation for Jan and Michael and receptive identification of body parts for Erin and Jack.

Baseline. Prior to baseline, brief written instructions were provided to parents on how to implement discrete trials. Written instructions also included information regarding delivery of reinforcement and prompting. Parents were given time to read the instructions and were then asked to run ten trials based on what they read. No questions were answered and no feedback was provided to the parents by the experimenter at this time.

Lecture and performance checklist. Following baseline a lecture in discrete trial

teaching was given to participants based on a PowerPoint presentation developed by the experimenter. During the presentation parents were allowed to ask questions regarding any part of the material that was unclear. Parents were then trained to use a performance checklist. The checklist included a number of criteria similar to those used in Befliore (2008) including correct discriminative stimulus, prompting attending, delivering the Sd clearly and only one time, immediate and contingent delivery of reinforcement, and contrast between correction and reinforcement. Training included an explanation by the experimenter on how to rate performance based on the checklist. Video footage of the experimenter running trials with the child was provided for practice. Training was considered complete if parents could complete the checklist with 80% accuracy. Parents were again videotaped implementing the discrete trial session with their children and if their performances did not meet mastery criteria, the video-self management phase began.

Video self-monitoring. Parents were given the videotaped session of themselves running discrete trials with their children. They were then provided with the checklist to rate their own performance. Following video self-monitoring parents were again asked to run ten trials.

Interobserver agreement was 85.1% across 33% of sessions, randomly distributed across baseline and intervention phases and calculated by dividing the total number of agreements by the total number of agreements plus disagreements and multiplying by 100.

Results

Parent performance.

Baseline data for both parent participants indicated low performance with Jan scoring 0% accuracy and Emily scoring 52% and 48%. Performance then increased following training slightly for both parent participants with Jan scoring 76% accuracy and Emily scoring 62%. Following implementation of video self-monitoring parents accurately identified areas needing improvement and performance increased significantly again for both participants. Jan scored 98%, 98%, and 100% accuracy over three sessions and Emily scored 92%, 92%, 96%, and 81% accuracy over four sessions. Performance did not maintain and decreased significantly for both parent participants when asked to run a novel program. Jan scored 1% accuracy and Emily scored 72% accuracy. Second implementation of video self-monitoring again resulted in parents identifying areas needing improvement and increases in performance. Jan increased performance to 92% and 90% over two sessions and Emily increased performance to 96% over one session.

Child performance

Michael scored 67% correct responses and 17% independent responses during baseline. Following training, performance did not significantly increase with correct responding at 78% and no independent responses. Implementation of video self-monitoring again resulted in significant increases in performance with scores of 100%, 100%, and 100% correct responses and 100%, 100%, and 90% independent responses over three sessions. When a new program was introduced, performance decreased

significantly to 0% correct responses and 0% independent responses. After second implementation of video self-monitoring performance returned to acceptable levels with a score of 100% and 100% correct responses and 70% and 70% independent responses over two sessions. Jack scored 0% and 40% correct responses and 0% and 30% independent responses over 2 sessions during baseline. Following training, performance did not significantly increase with correct responding at 57% and no independent responses. Implementation of video self-monitoring resulted in significant increases in performance with scores of 83%, 90%, 100%, and 70% correct responses and 0%, 20%, 0%, and 70% independent responses over four sessions. When a new program was introduced, correct responses increased to 100% and independent responses decreased to 0%. After second implementation of video self-monitoring correct responses and independent responses remained the same.

Discussion

The findings of this study indicate that parents may act as therapists implementing discrete trial teaching methods and that, through the use of video self-monitoring, treatment integrity may be maintained without the use of direct trainer feedback. This could be particularly beneficial to parents given that follow-up and feedback are not often available following training, due to the difficulty of providing services in parents' homes. Both parent participants' performances improved significantly following video self-monitoring for both acquisition and generalization of implementing a discrete trial program. Results of parent completed checklists indicated correct identification of areas needing improvement with both parents coming within at least 80% agreement of

checklists completed by the experimenter. Future research may assess the effects of correct completion of checklists on performance.

Child performance was also affected by increases and decreases in parent performance as a result of video self-monitoring. For Michael, performance increased from post-training to post self-monitoring and again following second implementation of self-monitoring. For Jack, performance increased following first implementation of self-monitoring. Following second implementation performance did not change from the previous session. One reason performance may not have increased significantly following second implementation for Jack is that the performance of Michael was dramatically less than Jack for the session prior to the second implementation. Another reason may be the novelty of the program. These results indicate child performance increases as a result of increased performance of parent implementation of discrete trial teaching. Anecdotally, parents were questioned by the experimenter about ease and usefulness of implementing video self-monitoring and both responded positively.

A possible limitation to this study is that parents had the opportunity to observe trained ABA therapists conducting discrete trial sessions in their home. Although observing trained teachers did not produce correct performance, it is unclear whether it contributed to the rapid and positive effects of the training. Another limitation to this study is that it was conducted with a small number of participants over a short period of time. With more sessions run, greater variability in the resulting data may have occurred, however, the present data, due to the immediate and significant increases in performance following implementation of video self-monitoring, are indicative of clear and dramatic treatment effects. Future research may include a greater sample size and be run over a

greater amount of time and across a larger number of programs.

References

- Baer, Donald M. Wolf, Montrose M. Risley, Todd R. (1987). Some still current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis*, 20, 313-327.
- Belfiore, Phillip J. Fritts, Kevin M. Herman, Brian C. (2008). The role of procedural integrity: using self-monitoring to enhance discrete trial instruction. *Focus on Autism and Other Developmental Disabilities*, 23, 95.
- Cooper, L. J. Wacker, D. P. Sasso, G. M. Reimers, T. M. Donn, K. (1990). Using parents as therapists to evaluate appropriate behavior of their children: application to a tertiary diagnostic clinic. *Journal of Applied Behavior Analysis*, 23, 285- 296.
- Ducharme, J. M. Feldman, Maurice, A. (1992). Comparison of staff training strategies to promote generalized teaching skills. *Journal of Applied Behavior Analysis*, 25, 265-279.
- Gresham, F. M. Gansle, K. A. Noel, G. H. (1993). Treatment integrity in applied behavior analysis with children. *Journal of Applied Behavior Analysis*, 26, 257-263.
- Harris, Karen R. Self-monitoring of attentional behavior versus self-monitoring of productivity: effects on on-task behavior and academic response rate among learning disabled children. *Journal of Applied Behavior Analysis*, 19, 417-423.
- Koegel, R. L. Glahn, T.J. & Nieminen, G. S. (1978). Generalization of parent-training results. *Journal of Applied Behavior Analysis*, 11, 95-109.
- Lafasakis, Michael. Sturmey, Peter. (2007). Training parent implementation of discrete trial teaching: effects of generalization of parent teaching and child correct

- responding. *Journal of Applied Behavior Analysis*, 40, 684-689.
- Lavie, Tami. Sturmey, Peter. (2002). Training staff to conduct a paired stimulus preference assessment. *Journal of Applied Behavior Analysis*, 35(2), 209-211.
- Neef, N. A. (1995). Pyramidal parent training by peers. *Journal of Applied Behavior Analysis*, 28, 333-337.
- Peterson, L. Homer, A. L. Wonderlich, S. (1982). The integrity of independent variables in behavior analysis. *Journal of Applied Behavior Analysis*, 15, 477-492.
- Petscher, Erin S. Effects of training, prompting, and self-monitoring on staff behavior in a classroom for students with disabilities. (2006). *Journal of Applied Behavior Analysis*, 39, 215-226.
- Sanders, M. R. Glynn, T. Training parents in behavioral self-management: An analysis of self-management and maintenance. *Journal of Applied Behavior Analysis*, 14, 223-237.
- Sarakoff, Randy A. Sturmey, Peter. (2007). The effects of behavioral skills training on staff implementing discrete trial teaching. *Journal of Applied Behavior Analysis*, 37 (4), 535-538.

Figure Captions

Figure 1.0. Percent accuracy of parent performance when implementing discrete trial teaching across sessions.

Figure 1.1. Percent accuracy of child performance for independent responses across sessions.

Figure 1.2. Percent accuracy of child performance for correct responses across sessions.

Figure 1.0

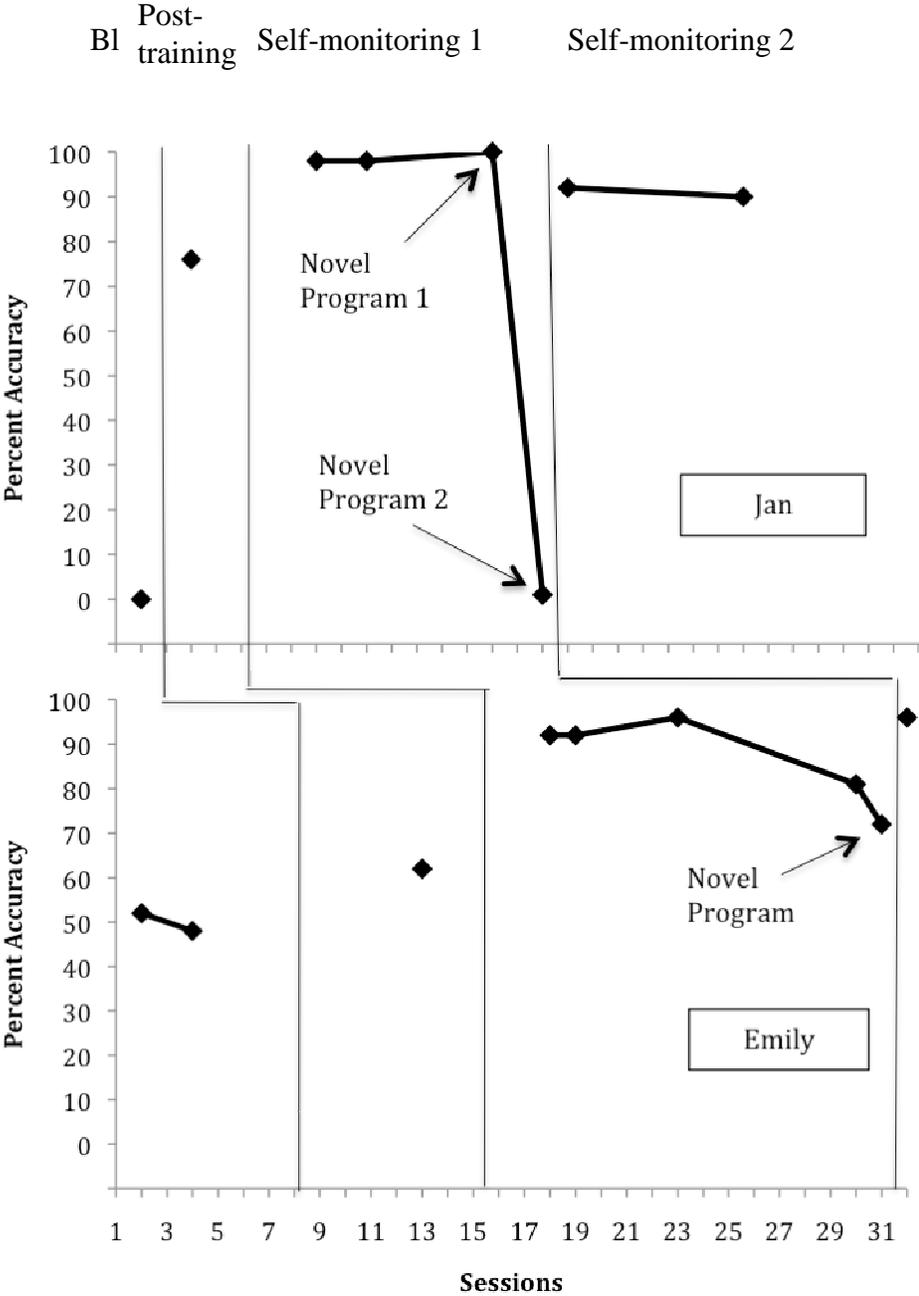
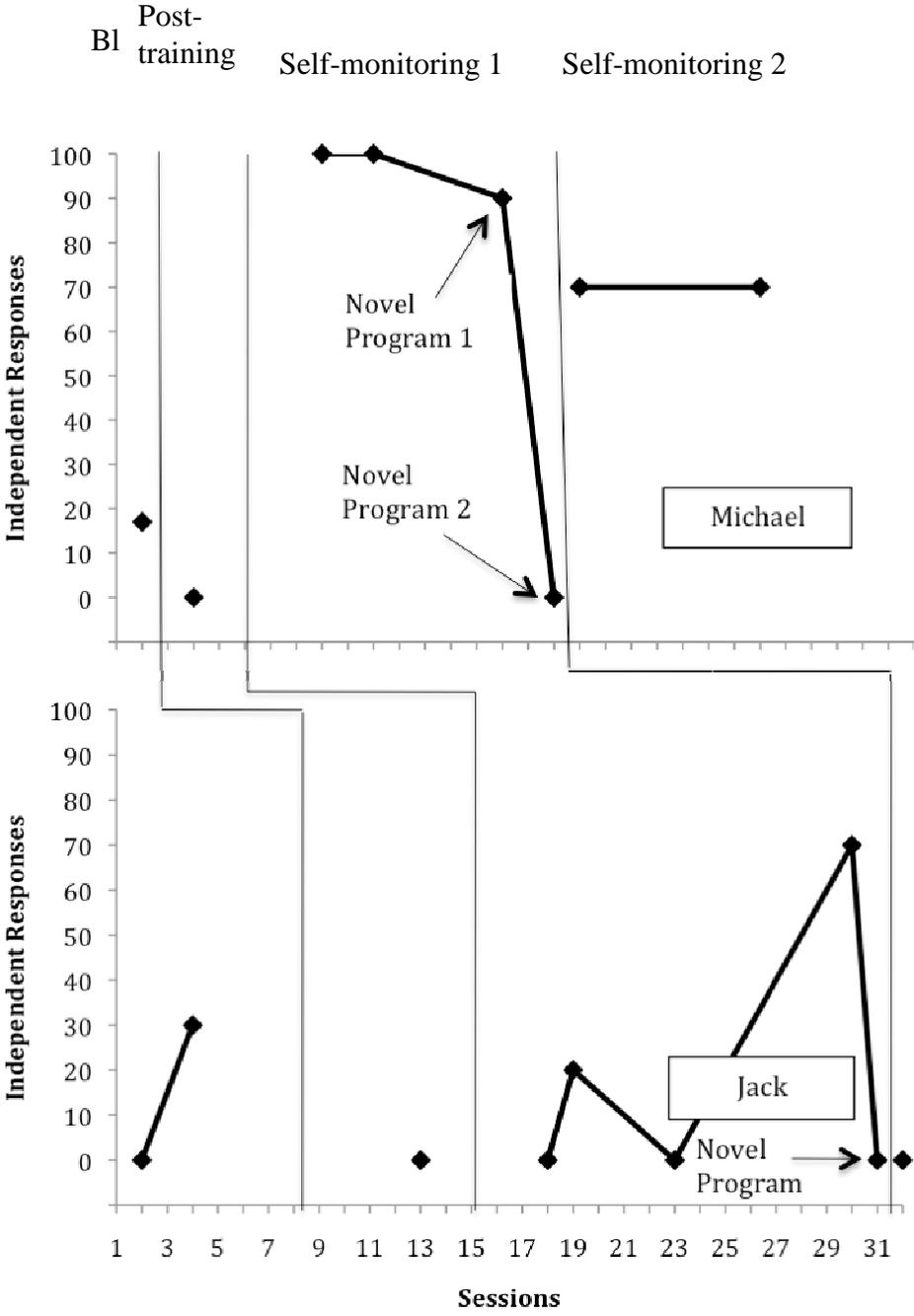


Figure 1.1



Figure

1.2

