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THE EFFECTS OF VIDEOTAPE MODELING ON STAFF ACQUISITION OF FUNCTIONAL ANALYSIS METHODOLOGY

JAMES W. MOORE AND WAYNE W. FISHER

MARCUS INSTITUTE

Lectures and two types of video modeling were compared to determine their relative effectiveness in training 3 staff members to conduct functional analysis sessions. Video modeling that contained a larger number of therapist exemplars resulted in mastery-level performance eight of the nine times it was introduced, whereas neither lectures nor partial video modeling produced significant improvements in performance. Results demonstrated that video modeling provided an effective training strategy but only when a wide range of exemplars of potential therapist behaviors were depicted in the videotape.

DESCRIPTORS: functional analysis, modeling, procedural integrity, staff training, video modeling

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Recent studies have shown that undergraduate students and teachers can be trained to implement functional analysis procedures with high fidelity (Iwata et al., 2000; Moore et al., 2002; Wallace, Doney, Mintz-Resudek, & Tarbox, 2004). Results of these studies have highlighted the utility of using videotaped examples of therapist behavior. Video modeling is a potentially inexpensive and efficient means to train therapists on a variety of behavior-analytic skills. For example, Lavie and Sturmey (2002) demonstrated the efficacy of video modeling in training staff to conduct preference assessments.

Although video modeling offers many potential benefits, little research has investigated the content of the actual training tapes. As Neef, Lensbower, Hockersmith, DePalma, and Gray (1990) noted, the content of simulated training methods may determine whether skills learned during training generalize to natural settings. For example, a number of studies have documented the failure of simulated training to produce generalized performance (e.g., McDonnell, Horner, & Williams, 1984; Morrow & Bates, 1987), especially when training did not contain adequate exemplars of correct performance. Although simulated examples may not be perfect portrayals of natural events, their potential strength may lie in the fact that these procedures allow greater control over the portrayal of events, thereby insuring adequate behavior sampling. To date, only Moore et al. (2002) have examined generalization of staff performance, but the study did not evaluate video modeling as a component of teacher training.

In the current study we attempted to replicate and extend previous research on staff acquisition of functional analysis methods by comparing videotapes containing exemplars of a wide variety of potential therapist behaviors with those containing only a limited number of examples. Finally, we conducted probes in which the staff members who served as participants conducted functional analysis sessions with actual clients to assess the degree to which training generalized across settings.

METHOD

Participants and Setting

Three participants, all with BA degrees in psychology, served as trainees in the study.

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Wayne Fisher is now at the Munroe-Meyer Institute, University of Nebraska Medical Center.

Requests for reprints should be sent to James W. Moore, who is now at Pearl River College, 101 Highway 11 North, Poplarville, Mississippi 39470 (e-mail: jmoore@prcc.edu).

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Participant 2 was pursuing a master's degree in behavior analysis and had training in a variety of behavioral methods but no experience with the functional analysis methods employed in this study. The remaining participants had no prior experience in functional analysis or in any other behavior analysis methods. Training sessions occurred in a conference room at a facility designed for the treatment of severe behavior disorders. Baseline and probe sessions were conducted in a padded treatment room (4 m by 4 m) in the facility.

Training Tasks, Dependent Measures, and Experimental Design

All participants were asked to conduct the attention, demand, and play sessions of the functional analysis described by Iwata et al. (2000). Participants implemented conditions under both simulated (with an experimenter role playing the client) and natural conditions (with a real client). All sessions lasted 5 min and were videotaped.

Simulated and natural functional analyses. During simulated sessions, participants implemented functional analysis conditions with an experimenter playing the role of the target client. The client followed scripts that specified the behaviors he or she they was to emit and the time of the session at which each response should occur. To assess the extent to which training procedures generalized to sessions with actual clients, several baseline and follow-up probes were conducted in which participants implemented functional analysis conditions with actual clients. The client target behavior in both the simulated and natural functional analysis sessions was self-injurious behavior (SIB), which was defined as forceful striking, scratching, rubbing, poking, or biting one's own body parts.

Target behavior for staff training. The primary dependent variable was the percentage of correct responses emitted by participants. Participant behaviors were scored as either correct or incorrect. Both occurrences (e.g., delivering praise following compliance in demand sessions) and nonoccurrences (e.g., not reacting to nontargeted responses) were scored as correct. In addition, both occurrences (e.g., delivering attention for nontargeted responses) and nonoccurrences (e.g., failing to provide escape following SIB during demand sessions) were scored as incorrect.

During the demand condition, up to five responses were scored during each trial as either correct or incorrect: (a) presentation and timing of instructional trials, (b) prompting client behavior with a gestural cue if the client did not perform, (c) physical guidance if gestures were not effective, (d) implementation of the escape period contingent on SIB, and (e) praise for compliance with verbal or gestural prompting. During the attention condition, four components were evaluated: (a) correctly initiating the condition (i.e., presenting the establishing operation prior to the condition, providing leisure activities, removal of attention), (b) delivery of social disapproval contingent on the target response, (c) ignoring appropriate behavior, and (d) ignoring nontargeted problem behavior. During the play condition, five components were evaluated: (a) engaging in interactive play (i.e., the therapist engages in mutual play activities when initiated by the client), (b) ignoring all SIB, (c) praising general appropriate behavior every 30 s, (d) initiating the changeover delay (i.e., therapist withholds praise if SIB occurs when praise is scheduled for delivery and waits for 5 s without SIB before delivering praise), and (e) ignoring any other forms of problems behavior. Percentage of correct responses was calculated by dividing the number of correct staff responses by the total possible opportunities (based on client behavior and protocol requirements), and multiplying the quotient by 100%. Interobserver agreement on occurrences of correct responding was collected for 33% of the sessions. Mean agreement across sessions and participants was 94% (range, 80% to 100%).

The experimental design consisted primarily of a multiple baseline across subjects design. In addition, different treatment components (partial vs. complete video modeling) were evaluated using features of a multielement design. All data taken during training were collected during simulated conditions.

Independent Variables

Training materials consisted of several components. Written materials included a description of a functional analysis in a format similar to that of the method section of a published article, combined with short protocols of each analysis condition. Lecture training included a PowerPoint® presentation delivered by an experimenter that included the following topics: history and rationale of functional analysis, specific procedures, and example outcomes. Video modeling training consisted of videotapes depicting two experimenters, one playing the therapist in a functional analysis session and the other playing the client. There were two types of video modeling, complete and partial, and within each type, there were three functional analysis conditions (attention, demand, and play) for a total of six videotapes.

The complete and partial video modeling conditions differed in terms of the number and range of therapist behaviors depicted. Complete video modeling was based on the procedures described by Iwata et al. (2000) and contained examples of each potential therapist behavior (based on the operational definitions). By contrast, the number of exemplars provided in partial video modeling was derived from videotapes of the actual functional analysis sessions (with real clients) from the Moore et al. (2002) study. The partial video modeling samples included examples of approximately 50% of potential therapist behaviors and consisted mostly of responses to client target behavior. Omitted examples of therapist behavior included responses to appropriate behavior, responses to nontargeted problem behavior, and the gestural and physical prompts used during the demand condition.

Although partial video modeling sessions were based on the functional analysis sessions with real clients in the Moore et al. (2002) study, both complete and partial video modeling were simulated in the current study. This was done to isolate number of exemplars as the independent variable.

Training Procedure

Natural baseline. During this phase, participants implemented functional analysis conditions with an actual client. Three days prior to conducting baseline sessions, participants were given all written training materials. One day prior to baseline, all participants were given a written test to ensure they each entered baseline with similar knowledge of the procedures. All participants answered 95% to 100% of the test questions correctly. Participants were given all materials required to conduct the sessions and were told, "Run the [condition name] as accurately as you can based on your reading." No feedback was provided, and participant questions were not answered.

Simulated baseline. This phase was identical to the natural baseline, except that participants implemented conditions with simulated clients (experimenters). Participants were allowed to review the written materials and then were told, "Run the [condition name] as accurately as you can based on your reading."

Training Phase 1. All participants were exposed to lecture training (control) for one of the functional analysis conditions. Another condition was then randomly assigned to receive complete video modeling. The third condition was randomly assigned to receive partial video modeling. For example, Participant 1 was first taught to conduct play sessions via complete video modeling, demand sessions via partial video modeling, and attention sessions via lecture only.

For complete and partial video modeling sessions, participants were told, "Run the [condition name] as accurately as you can based on what was covered in the readings, lecture, and your viewing of the videotape." For the lecture-only training, participants were told, "Run the [condition name] as accurately as you can based on what was covered in the readings and lecture." The criterion for mastery-level performance was set at 80% correct responses.

Training Phase 2. The condition that received complete video modeling during Phase 1 was omitted if the participant reached mastery criterion. The condition that received lecture-only training in Phase 1 was then exposed to complete video modeling, whereas the condition that received partial video modeling in Phase 1 remained in that training mode if the mastery criterion was not met. Participants were again told, "Run the [condition name] as accurately as you can based on what was covered in the readings, lecture, and your viewing of the videotape."

Training Phase 3. The condition that received complete video modeling during Phase 2 was omitted if mastery criterion was reached. The condition that received partial video modeling during Phase 2 was then exposed to complete video modeling if mastery criterion was not met. Participants were again told, "Run the [condition name] as accurately as you can based on what was covered in the readings, lecture, and your viewing of the videotape."

Follow-up probes. To assess the generalization of training, we conducted brief probes with actual clients as each participant met mastery criterion in all of the functional analysis sessions. These sessions were identical to the natural baseline probes, except that participants were told, "Run the [condition name] as accurately as you can based on all of your training." The clients during this phase were the same clients used during the naturalistic baseline.

RESULTS AND DISCUSSION

Figure 1 shows the percentages of correct responses in simulated and naturalistic sessions during baseline and the various treatment phases. Participants' accuracy was low across both baseline sessions. Lecture only was implemented for three functional analysis conditions (once with each participant in Training Phase 1) and resulted in increases in percentage correct responding, although still below the mastery criterion. Partial video modeling also was delivered for three conditions (once with each participant, starting in Phase 1) and resulted in small to moderate improvements over baseline. Complete video modeling was delivered for all nine functional analysis conditions (three times with each participant) and resulted in clear improvements each time it was implemented. In fact, mastery performance (above 80%) occurred following complete video modeling for eight of the nine implementations.

Despite marked improvement in Participant 3's accuracy during the play condition following complete video modeling in Phase 3, mastery performance was not achieved. Following a single trial in which feedback was delivered after the last session of this phase, Participant 3's accuracy increased to exceed the mastery criterion. In this feedback, the experimenter verbally reviewed all of the correct and incorrect responses made by the participant during the previous session. This was the only time in the study that a participant received postsession performance feedback.

Results of the natural baseline and follow-up probes suggest that skill acquisition generalized to settings that involved actual clients. That is, all of the participants displayed mastery performance in each type of session (attention, demand, and play) during the follow-up probes.

The combined use of written materials and a lecture describing functional analysis methods produced moderate improvements in staff implementation of functional analysis sessions but did not produce mastery performance. Allowing participants to view a 5-min video with multiple exemplars of correct therapist responses resulted in consistent and marked

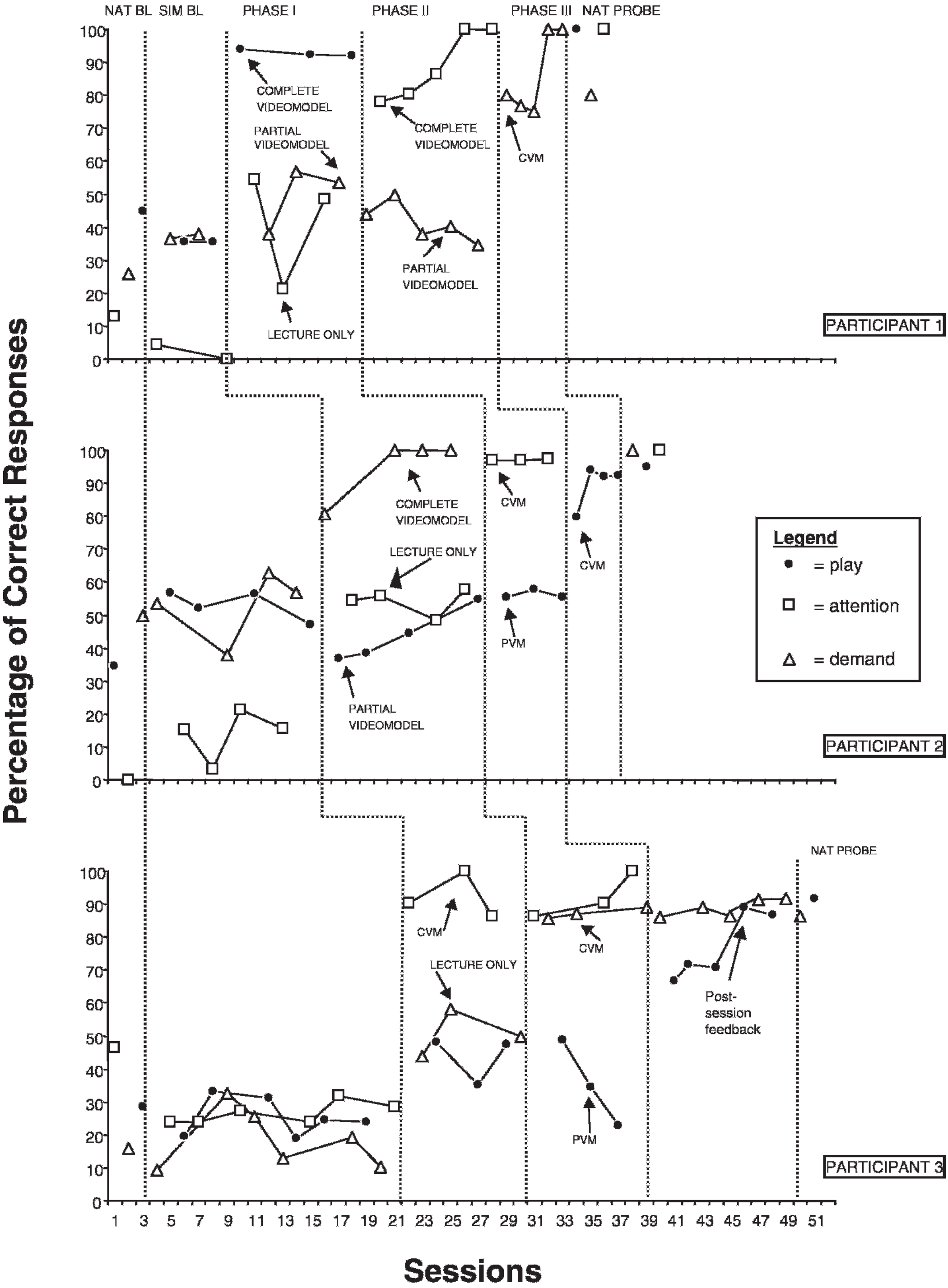

Figure 1. Percentage of correct responses for Participants 1, 2, and 3 during natural and simulated baselines, training phases, and follow-up probes with actual clients.

improvements in performance each time this intervention was implemented (and produced mastery performance eight of those nine times). By contrast, when participants viewed a similar 5-min video that contained about 50% fewer exemplars of correct responding, performance improved only slightly or not at all. Taken together, these results suggest that simulated video modeling with multiple exemplars represents an effective and efficient method of training staff members to implement functional analysis procedures.

The current results extend research on the implementation of functional analyses in several ways. First, our data suggest that very brief forms of training may produce adequate performance. The Cvideo modeling tape for each condition was only 5 min long, resulting in a total of 15 min for all three conditions. Thus, it is possible that training could have been completed in less than half an hour. This finding is important because efficient video modeling techniques, like those used during complete video modeling in the current study, can be implemented with groups of individuals during staff orientation or training seminars. Although the complete video modeling portion represented a small percentage of the total training time (compared with the written materials and lecture), the complete video modeling training produced the largest and most consistent improvements in staff performance. It should be noted that video modeling alone was not sufficient to help Participant 3 with certain aspects of training. Participant 3 required personal intervention from a trainer.

A second contribution of the current study was the demonstration that improvements in staff implementation of functional analysis procedures following complete video modeling were evident not only when the staff conducted simulated functional analysis sessions but also when they conducted actual functional analysis sessions with real clients. Previous training studies using video modeling (Iwata et al., 2000; Wallace et al., 2004) did not collect data to determine how well training generalized to actual functional analysis sessions. Results of the current study suggest that training with actual clients was not necessary to transfer skill acquisition.

It should be noted that the skills taught, although important in conducting assessment sessions, represented only a subset of skills needed to fully implement a functional analysis. Future research should assess the efficacy of video modeling as a training tool with a wider array of behavioral assessment and treatment techniques.

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