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THE EFFECTS OF VIDEO MODELING ON STAFF IMPLEMENTATION OF A PROBLEM-SOLVING INTERVENTION WITH ADULTS WITH DEVELOPMENTAL DISABILITIES

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We investigated the effects of video modeling on the percentage of correctly implemented problem-solving steps by staff in a group home for adults with developmental disabilities, using a nonconcurrent multiple baseline design across participants. The treatment consisted of staff watching a video model demonstrating the correct implementation of a problem-solving intervention (i.e., teaching clients to identify problems, possible solutions, and consequences to each solution, and to choose the best solution). The percentage of correctly implemented problem-solving steps increased for all participants, and the effect was maintained over time, generalized to novel problems, and generalized from role play with a researcher to actual clients.

DESCRIPTORS: problem solving, staff training, video modeling

Treatment integrity is an important aspect of behavior-analytic research and practice (Peterson, Homer, & Wonderlich, 1982). If an intervention is not implemented as intended, positive client outcomes may not be achieved. In community-based residential settings, the primary implementers of behavioral interventions are typically direct-support staff members. These staff members, who often have little or no formal training in behavior analysis, typically are responsible for simultaneously implementing multiple behavior plans with multiple clients. Although these staff members often have extensive training needs, funding limitations and large supervisor caseloads often interfere with the provision of necessary training.

The use of video modeling may be one means of overcoming barriers to timely and effective training. In a video-modeling intervention, the trainee watches a video presentation of someone correctly performing the targeted skill (the video model) and then has the opportunity to use the targeted skill in an identical or similar situation. Video models have been used to effectively teach a variety of skills to staff, including general behavior-management strategies (Neef, Trachtenberg, Loeb, & Sterner, 1991), counseling strategies (Peters, Cormier, & Cormier, 1978), stimulus preference assessments (Lavie & Sturmey, 2002), reductive behavior plans (Macurik, O'Kane, Malanga, & Reid, 2008), and functional analyses (Moore & Fisher, 2007).

The use of video models as a training tool is promising; however, the extent to which skills acquired with video modeling by direct-support staff are maintained over time and generalize to new situations is unclear. Thus, the purpose of the present study was to evaluate the effects of video modeling on the implementation of a problem-solving intervention by direct-care staff who work with individuals with mental retardation in a community residential setting. An additional purpose was to investigate whether problem-solving skills acquired via video modeling in a training setting would generalize to nontraining problems in the training setting and to actual problems with clients in the community residential setting.

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METHOD

Participants and Setting

One female and 5 male staff members with a mean age of 27 years (range, 23 to 31) who worked in a community residential program participated in this study. Participants were selected if they had been employed by the residential provider for at least 2 months and correctly answered questions regarding the problem-solving intervention on a behavior support plan competency test. Participants had been employed by the program for a mean of 34 months (range, 5 to 63). All participants had high school (or equivalent) diplomas and no formal academic training in behavior analysis.

Sessions consisted of one role play and were generally conducted once or twice per week during each participant's scheduled shifts. Sessions were conducted in the living room or kitchen areas of four group homes. Two or three clients with developmental disabilities resided in each home, and at least one client in the home participated in problem-solving training sessions as part of his behavior support plan. All target clients had been diagnosed with mild mental retardation and had a history of verbal aggression.

Materials

The materials used in this study included written instructions for problem-solving training sessions, a television with DVD player or computer, 3-min DVD video models, and a list of scripted responses used by the researcher to respond to participants' prompts during the role play. Each DVD had four versions of the video model arranged to match the gender of each participant and the client with whom they worked (e.g., a male staff member who worked with a female client viewed the video model with a male staff member and female client). The models featured two actors using one of the problem-solving scripts in a home similar to the homes in which the participants worked. The scripts were developed using common situations encountered by the clients in the home (e.g., a roommate borrowing or stealing the client's property, having a request denied or postponed). The training script precisely mirrored the video model, whereas the generalization script included a novel problem.

Problem-Solving Intervention

The residential program agency adopted a specific problem-solving intervention as part of its evidenced-based practice initiative (Agran, Blanchard, Wehmeyer, & Hughes, 2002; Agran & Wehmeyer, 2005; Crites & Dunn, 2004). The intervention was to be used by staff during formal problem-solving training sessions and following situations when a client was aggressive or appeared to be visibly upset. The problem-solving intervention included seven steps: (a) Prompt the client to participate; (b) prompt the client to go someplace quiet; (c) prompt the client to identify the problem; (d) prompt the client to identify at least three possible solutions, at least one of which is appropriate; (e) prompt the client to identify at least one programmed or natural consequence for the client for each solution (e.g., "What would happen to you if you did X?"); (f) prompt the client to identify at least one programmed or natural consequence for others for each solution; and (g) prompt the client to identify the best solution (i.e., the solution with the fewest negative consequences for the client and others).

Target Behavior Definitions and Measurement

During each session, a data collector scored whether the participant correctly implemented each of the seven problem-solving steps. Participants did not need to prompt clients in the exact order listed to be scored as correct. The percentage of correct implementation was calculated for each session by dividing the number of steps completed correctly by the total number of steps and converting the ratio to a percentage.

Data collectors were undergraduate special education or social work students who had been

trained by the researcher on operational definitions and data-collection procedures. During training sessions, data collectors either sat in the room where the training session took place or sat in an adjacent room (e.g., the data collector observed from the kitchen while a training session occurred in the living room). Data collectors scored responses as correct when they included key words (from a range of identified words) for each step. For example, the third problem-solving step is "Identify the problem." If the participant asked, "What is the problem?," it was scored as correct.

Interobserver agreement was assessed for at least 14% of sessions. An agreement was defined as both observers scoring a response correct or both observers scoring a response incorrect for each step of the intervention. Point-by-point agreement was calculated by dividing the total number of agreements by the total number of agreements and disagreements and converting the ratio to a percentage. Mean agreement was at least 87% (range, 87% to 100%) for each participant.

Procedure

Experimental design. Experimental control was demonstrated using a nonconcurrent multiple baseline design with two sets of 3 participants.

Preexperiment training. Prior to the study, participants were trained on the problem-solving training procedures by their residential manager and were provided access to a written description of the procedures. The training included one or more of the following, all in the absence of clients: verbal instructions, modeling, role plays, and opportunities for questions. After training, staff members completed a written competency test regarding the procedures. The test required staff members to identify each step of the training procedures in a short-answer format. This training was part of the agency's standard employee training.

Baseline. During baseline, participants had access to written procedures from prior training. The data collector prompted the participant to engage in a role-play exercise with the researcher using a fictitious scenario. During the role play, the researcher responded to questions as a client would, using scripted responses. No other instruction, prompting, or feedback was provided.

Video modeling. During the treatment phase, conditions were identical to baseline except that the participant viewed a video model prior to beginning the problem-solving role-play exercise. The researcher responded to questions by following a written script in the same fashion as during baseline.

Maintenance probes. At least one maintenance probe was conducted for each participant 2, 3, or 4 weeks after the performance criterion (i.e., 90% or more correct) had been met for three consecutive video-modeling sessions. Maintenance probes were conducted identically to baseline.

Generalization probes. Two generalization probes were conducted with each participant during baseline and maintenance conditions. One probe included a novel problem, and the other included an actual client discussing a real problem that had recently occurred. Probe sessions for the novel problem were conducted identically to baseline except for the new problem. Prior to probe sessions with an actual client, the data collector asked the client if there was a recent problem to discuss and then prompted the participant to help the client to solve that particular problem (e.g., "Kyle recently had a problem with one of his roommates regarding the cleanliness of their room. Why don't you problem solve this situation with him?"). If the participant performed below criterion levels for any generalization probes conducted in the maintenance phase, he or she watched the video model immediately prior to being given another opportunity to engage in the problem-solving intervention with a real client. Following the additional video-modeling session, at least one

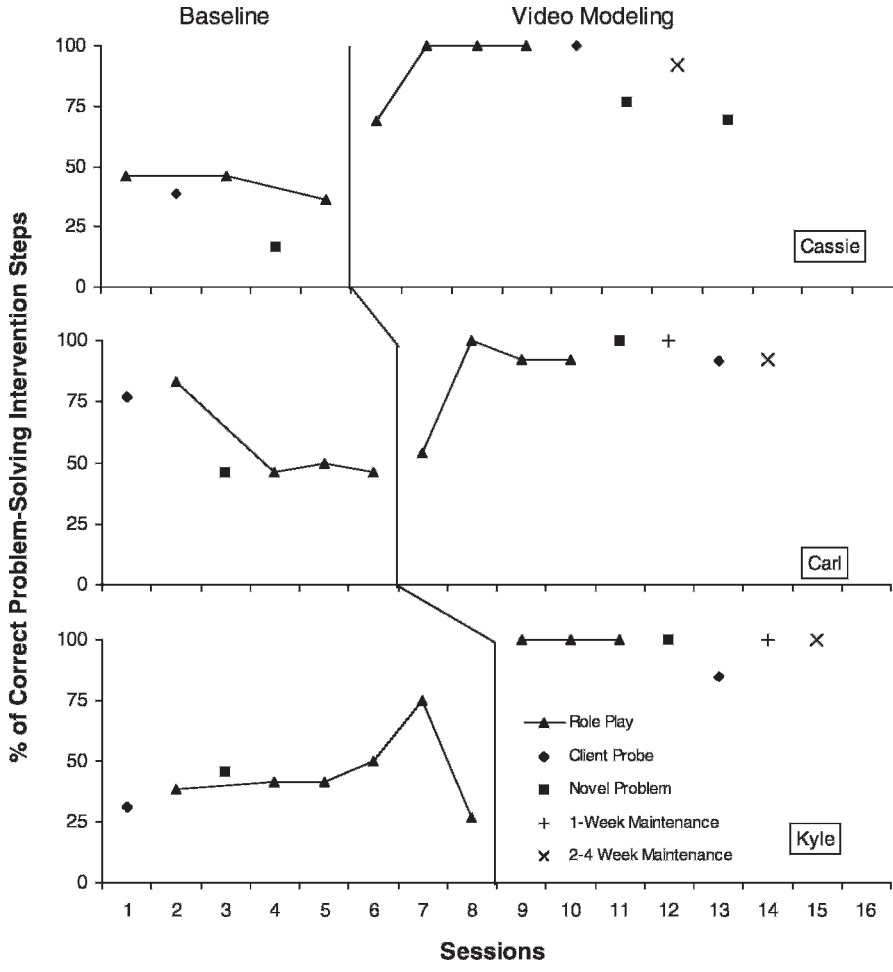

Figure 1. The effects of written instructions and video modeling on the correct implementation of the problem-solving intervention for Cassie (top), Carl (middle), and Kyle (bottom).

follow-up probe was conducted using the procedures from baseline (i.e., the participant was prompted to conduct a problem-solving training session without watching the video).

RESULTS AND DISCUSSION

The effects of the video-modeling intervention on the percentage of correctly implemented problem-solving steps are displayed in Figure 1 for the first 3 participants and Figure 2 for the second 3 participants. During baseline, participants correctly prompted a mean of 38% of problem-solving steps (range, 13% to 56% across participants). Despite the fact that participants had received agency-sponsored training on the problem-solving intervention before the study and had access to the written instructions during baseline, none of them consistently exhibited the skills at a high level. After implementation of video modeling, the percentage of correct implementation increased to a mean of 91% (range, 85% to 100% across participants). Five of the 6 participants met criterion before or during their fifth session. The remaining participant (Raymond) met criterion after nine video-modeling sessions.

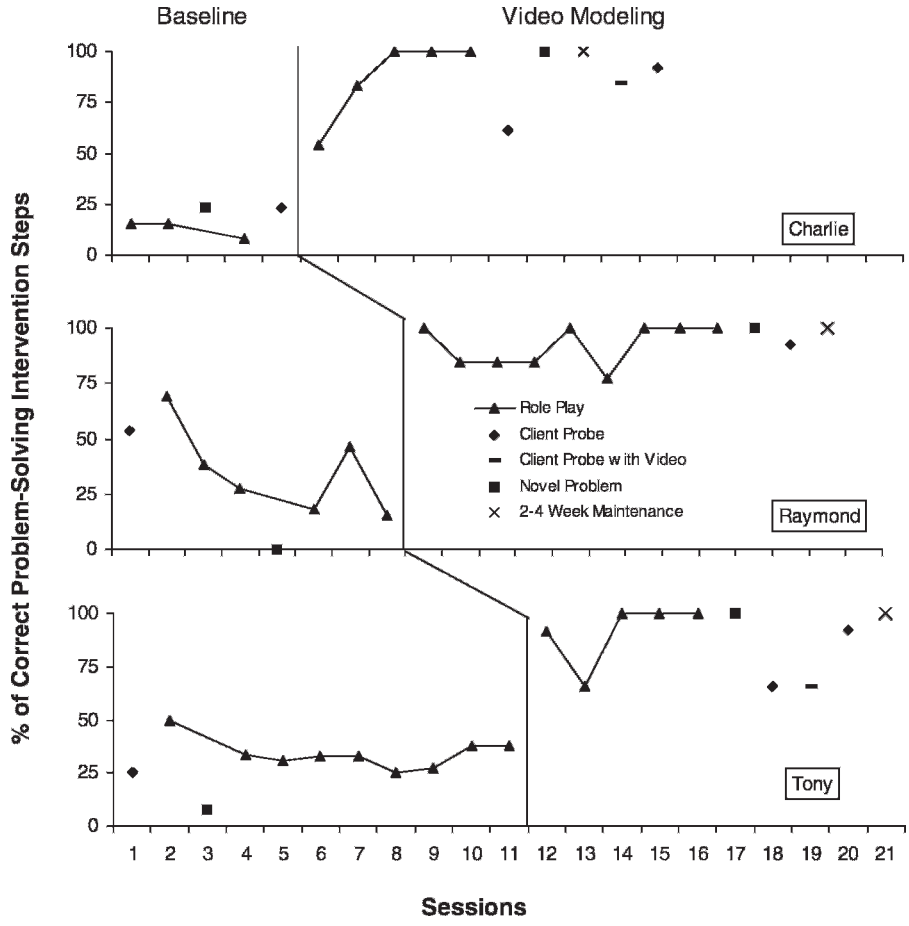

Figure 2. The effects of written instructions and video modeling on the correct implementation of the problem-solving intervention for Charlie (top), Raymond (middle), and Tony (bottom).

After meeting the performance criterion with the first problem, all 6 participants maintained high levels of performance during the generalization probe with a novel problem. Four of 6 participants maintained high levels of treatment fidelity with an actual client living in the group home. Although the percentage of correctly implemented steps with the client increased from baseline for the other 2 participants (Charlie and Tony), their performance fell below criterion levels. Therefore, both participants were required to view the video model before conducting additional generalization sessions. After viewing the model, the percentage increased to criterion levels during additional generalization probes for both participants and in subsequent sessions without the video model. Thus, the percentage of correctly implemented problem-solving steps reached criterion for all 6 participants, was maintained during maintenance probes, and generalized to novel problems and actual clients.

One limitation to this study is the relatively simple skills required to implement the problem-solving training steps. Future research should assess the effectiveness of video models in similar settings with more complex restricted operant behaviors, as well as free-operant behaviors (i.e., the effects of video models on staff's correct responses to client-initiated interaction, including behaviors such as social initiations or aggression). A second limitation

is the lack of data on client behavior change. However, research conducted by Agran et al. (2002) suggests that individuals with mental retardation who learn problem-solving strategies (specifically identifying problems and solutions) are more successful in integrated academic settings as evidenced by improved social skills (e.g., touching others) and academic skills (e.g., following directions).

The current study extends research on using video models by demonstrating the effectiveness of this approach as a training tool to increase treatment integrity with direct-support staff with minimal formal training (including academic training) in behavior analysis (see also Macurik et al., 2008). In addition to the increases in staff performance, it is important to note potential gains in efficiency, including cost and time. As behavior analysts work in community settings, they face many obstacles to staff training including budget shortages, time limitations, and staff turnover. Using video models may help to address these issues by decreasing training time and by being able to be reused with new staff.

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