poor treatment formulation and can contribute to, instead of overcome, clinical problems.

What, then, should practitioners be aware of when planning a program for a student or client with challenging behaviors? As described with Alice, be aware that not all behavior demands the "setting of a consequence." Focus, instead, on what interpersonal-environmental variables are naturally supporting one's behavior, be it "appropriate" or "challenging." Next, review carefully whether the consequences that are imposed are clinically indicated as an outcome from functional assessment. More importantly, consider whether these consequences are contributing to the presenting disorder. Finally, examine whether there are antecedent conditions or situations that are associated with the occurrence of desirable responses and the absence of challenging behaviors. In most cases, they do exist and can be programmed therapeutically to produce rapid, meaningful, and enduring change.

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PSYCHOSOCIAL INTERVENTIONS UPDATE

BETSEY A. BENSON, PH.D.

Self-Modeling

In modeling learning, one acquires a new behavior or one's inhibitions to engaging in a behavior are reduced after watching someone else perform it. In **self-modeling**, the individual serves as his/her own model, exhibiting behaviors that occur seldom or not at all at the present time. This is often accomplished by way of edited videotapes of the individual. The reliance on visual representation of the behavior, with little or no verbal requirements, makes self-modeling a versatile technique for working with individuals with developmental disabilities. As described here, self-modeling will refer to video self-modeling, the technique of making videotapes of individuals' behavior to portray future behavior goals. Still photographs could also be used to self-model target behaviors in many cases. This psychosocial intervention update will summarize some of the characteristics of self-modeling and examples of the techniques. Much of the work on self-modeling has been done by Dr. Peter Dowrick of the University of Pennsylvania. The interested reader should consult Dr. Dowrick's's book for more details.[1]

Types of Self-Modeling

In self-modeling, the individual sees him/herself on videotape performing only adaptive behaviors. By viewing a brief, self-modeling videotape several times, the client acquires the new skill or performs the skill more frequently. There are two main variations of self-modeling, **positive self-review** and **feedforward**. In positive self-review, the individual is shown performing behaviors that are in his/her repertoire now, but are not performed consistently. This procedure is used in sports to demonstrate to the gymnast or tennis player, for example, current, but infrequently occurring superior performances. Beginners in performing a skill are most likely to benefit from this procedure. Experts can be hampered by viewing sequences of behaviors that are already well-learned.

Positive self-review was used to improve the workshop performance of adults with moderate or severe physical handicaps.[5] A one-minute videotape was made that showed

the participant performing assembly tasks with mistakes and hesitations edited out. Worker productivity increased during a two-week intervention period and at four months follow-up. Self-modeling has also been used with hyperactive children in which tapes of on-task behavior are made editing out disruptions.[1]

In feedforward, potential future adaptive behavior is constructed from existing skills. In one case study, a hyperactive child was videotaped and his appropriate play activity was edited to remove inappropriate behavior. The appropriate play behavior segment was repeated on tape to give the impression of a much longer playing time.[6] Feedforward was also used in a study in which personal safety training was taught to adults with mental retardation.[1] Several community safety situations were identified and participants were videotaped exhibiting appropriate verbal and nonverbal behaviors. The taped sequences were edited to show the desired target behaviors in proper order.

Steps of Self-Modeling

There are six steps in self-modeling: assessment, task analysis, video capture, editing, viewing the tapes and evaluation.[1] A good assessment is essential to the success of the procedure. One examines the individual's current behavior carefully and specifically identifies the goal or target behaviors. In the task analysis., the necessary components of the target behavior are identified.

Video capture refers to taping the participant engaging in the element behaviors that will be edited onto the viewing tape. The video capture sessions need to be preplanned to ensure that the specific behaviors and sequences of actions are taped. The director ensures that appropriate motor behaviors, gestures, body posture, etc. are recorded. In the video editing phase, the component behaviors are selected and arranged in the appropriate order. Key elements of the target behavior can be emphasized by using slow motion, still framing, or voice over.

The participant views the tape several times per week, for a few weeks. Written schedules for viewing, including date and time, and a written record of actual viewing are useful for monitoring compliance with the schedule. The post-evaluation phase refers to collecting information on the participant's performance of the target behaviors after viewing the tapes.

In the personal safety sample, a checklist of elements of personal safety was developed and each person was evaluated on those elements. Six types of situations were incorporated into role plays. They were charm, trick, harassment, verbal threat, physical force and small talk (non-threat). Specific, individualized target behaviors for training were determined based on the assessment. Pre-planned role playing was taped with off-camera persons providing prompts for the participants and staff playing the role of strangers. The participant's edited tapes were 3-minutes long. Each tape began with the individual introducing him/herself and saying, "This is my personal safety tape." Participants watched their tape three times per week for two weeks. The post-evaluation phase included role plays, interviews with staff, and interviews with the participants. Adaptive use of the training provided on the self-modeling tapes was reported months later and in situations that were somewhat dissimilar from the edited scenes.

The availability of relatively inexpensive videotaping equipment makes self-modeling a potential intervention for many individuals with developmental disabilities. Editing tapes is much easier with professional editing equipment, but can be accomplished using a camcorder and VCR. After breaking off the tab on the rear side of the unedited tape to guard against inadvertent erasing (or you can make a copy of the master tape), one can transfer taped images between the unedited camcorder tape and edited VCR tape by carefully using the play, record and pause modes on the two machines. There is take-up footage at the start of the play mode which means that some extra tape must be allowed at the beginning of a segment so that the scene is not cut off. The editing phase can be rather time-consuming. Experienced camera operators can reduce editing time by only recording the behaviors needed for the self-modeling tape. Editing time can also be reduced by using relatively inexpensive editing equipment designed for amateur use. For example, electronic stores carry video-editing decks for home use (for about $200) that could greatly improve precision and reduce the time needed to prepare tapes. In addition, newer VCR's may have a "jog shuttle" feature that makes it easier to identify specific frames for editing.

Applications

Self-modeling has been applied with individuals of wide age range and cognitive functioning levels. Efforts have included self-modeling videos to teach sign language skills to deaf children who are able to imitate the signs made off-camera by staff.[7] The signs were paired with the natural consequence of the sign to illustrate its meaning; e.g., sign for coffee is followed by the participant drinking a cup of coffee. Additional applications have included improving the swimming skills of children with spina bifida,[4] decreasing the cross-gender behavior of a young boy,[2] and reducing depressed mood. To reduce depressed mood, individuals are videotaped talking about a pleasant or exciting experience. During this recounting the person's affect and energy generally are improved in comparison to the depressed state. The recording is then edited for self-modeling to capitalize on non-depressed verbal and nonverbal behaviors. Clients can participate in the planning of the taping by choosing their dress and discussion topics.[1]

Videos constructed of daily routines can ease the adjustment to transitioning. For example, to bridge the gap between summer vacation and school, a video can demonstrate the routines the individual engaged in last spring when he/she was attending school. When a school change is anticipated, a video can be developed of the new school setting that includes salient elements such as entering the school, the lunchroom, etc.[3]

Video futures is a way to use self-modeling to assist with futures planning. When a future goal has been selected, such as independent living, scenes are developed that illustrate the activities the person will most likely engage in if independent living is achieved; e.g., using the telephone,

SAMPLE EDITING CUE SHEET FOR VIDEO SELF-MODELING

Sequence	Start No.	Pre-Event Cues	Behavior for Tape	End-Event Cues	End No.	Comments

Leave the "Sequence" block blank until viewing the entire tape and deciding on the order of the segments. Mark the footage of the starting point you want to include. Note cues that lead up to the beginning of that segment ("pre-event"). Describe the behavior that is portrayed in this segment. Describe the "end-event cues" that are within the segment you want to include and the ending footage number. Add comments, e.g. "quick turn off", "good nonverbal behavior." (From P.W. Dowrick)

paying bills, cleaning, doing laundry. The specific identification and portrayal of the tasks can provide motivation for training.[3]

Not all reports of self-modeling have been successful ones. When self-modeling was used to teach manual signs to adults with mental retardation, one person used a sign spontaneously and appropriately when not watching his self-modeling tape, another used a sign immediately before and after watching the tape, but in no other situations, and another spontaneously used a sign once and was rewarded, but no other unprompted signings were observed. Using self-modeling to teach a first manual sign was not successful.[7]

Awareness and Mechanisms of Action

It does not appear that the individual who views the self-modeling tape must be capable of understanding the procedure. Many individuals have participated in self-modeling whose cognitive abilities did not permit discussion of the process other than to identify themselves as the person on the tape. On the other hand, the involvement of the participant in developing the sequences included on the self-modeling tape is thought to be beneficial. Some people have questioned whether participants are being tricked into believing that they behaved in ways that they did not. Rather than creating the impression that the participant is being deceived about the behavior he or she has engaged in, Dowrick suggests that self-modeling be introduced in the following ways: "Here are some good examples of what you should do more often," or "Here is a goal, this is what you will look like when you've mastered this difficult situation."[1] A partnership with the participant in setting goals would appear to be quite beneficial, when possible.

The way in which self-modeling works is unclear. The edited tape generally has information value about skill performance. Specifically, it may work to change behavior by improving discrimination between appropriate and inappropriate behaviors. Some have suggested that self-modeling improves self-efficacy, giving the individual more confidence to try new behaviors. Providing positive consequences for watching the videotapes does not seem to be necessary in order for behavior change to occur, although in some applications praise and reward have been given. It may also be helpful to add voice-over self-instructions of a self-affirming nature when the participant's lack of self-confidence seems to be an issue in making additional gains or when performance of the behavior seems to have dropped off recently.[1] Whatever the mechanisms of action, it seems that participants often enjoy viewing the tape. Individuals who participated in the personal safety training project were reported to watch their tapes periodically several months after the project concluded.

SUMMARY

Video self-modeling is an intervention in which an individual watches a videotape of him/herself performing only adaptive behaviors. By editing tapes to show current superior performances that occur infrequently (positive self-review) or to show new behavior sequences that do not presently occur (feedforward), changes in behavior can be obtained. Self-modeling has been used with individuals of many ages and a wide range of level of functioning. The reliance on visual cues rather than verbal cues makes the procedure generally applicable to persons with mental retardation. The procedure has not been universally successful and clear requirements have not been defined. The number of successful applications, however, indicates that self-modeling warrants further investigation, especially in instances in which other interventions have been ineffective.

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