Practical Guide to Using Video in the Behavioral Sciences

PETER W. DOWRICK
University of Alaska, Anchorage
and Associates

CHAPTER 17

Using Video with Developmentally Disabled Learners

PATRICIA J. KRANTZ
GREGORY S. MacDUFF
OLLE WADSTROM
LYNN E. McCLANNAHAN

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In this chapter, Dr. Krantz and her colleagues explore variations on the established ways of using video for the benefit of children and adults who have very challenging disabilities. First, they briefly enumerate several arguments for using video where other methods have failed (e.g., video eschews reliance on language; video readily enables repeated exposure). They then describe self-modeling procedures for deaf, mentally retarded adults. Five case studies are described in some detail to indicate when and under what circumstances success was achieved (or not achieved) in attempts to teach sign language and self-care skills. The remainder of the chapter concerns children and teenagers with autism. One case (a 7-year-old girl with high rates of self-injury) is particularly instructive because: (a) they were eventually successful with a generalization issue previously resistant to other efforts, (b) a succession of techniques and combined approaches is described in a multistage solution, and (c) through this sequence of techniques they effectively taught the girl how to learn from her own adaptive (edited) video image. Other cases (precursors to self-injury, conversational skills, and noncontextual vocalizations) are described in detail to offer some insight into the procedural elements contributing to these developing techniques. Based on these experiences, the authors end with a list of recommendations and suggestions for further exploration.

P. W. D.

Teaching everyday living skills and management of difficult behavior problems to children and adults with severe developmental disabilities presents many challenges. This chapter examines the potential of video in helping to meet these challenges. The section that follows provides a selective review of other investigators' experiences with video-intervention strategies. Subsequently, our own experiences in exploring the promise (and the limitations) of video self-modeling are described in some detail. The chapter concludes with some methodological considerations that appear to preface a more systematic and informed approach to the use of video technology with learners who are severely handicapped.

SOME POTENTIAL ADVANTAGES OF VIDEO

Video appears to offer many advantages to learners with developmental disabilities. First, for those who have acquired "TV-watching" skills, video can sometimes capture the attention of people who, in other contexts, display extreme attentional deficits. We first noted this some years ago, after videotaping children with autism while they performed in a holiday program for their parents. After a first viewing of the tape, some of the children repeatedly requested it; we made copies of the original tape, because of its frequent use.

Second, video offers an alternative instructional medium for students who cannot read or who do not have complex language repertoires (Browning & White, 1986). Indeed, a well-constructed video may circumvent many symbol interpretation requirements by presenting learners with straightforward imitation tasks.

Third, for people whose observational learning skills are not well developed, video creates opportunities for repeated viewings of target performances. Charlop and Milstein (1989), for example, reported that three high-functioning children with autism met criterion on a brief conversation after 3 to 20 presentations of the videotaped conversation. (People with more severe skill deficits might require more viewings.)

Fourth, the video medium can display target skills in the settings where they must ultimately be displayed, for example, at home, at school, in the community, or in the workplace. Haring, Kennedy, Adams, and Pitts-Conway (1987) questioned participants about videotaped models' performances in order to promote generalization of shopping skills from training settings to probe settings. The three participants with autism did not generalize to community stores until video training was provided. DeRoo and Haralson (1971) used video to increase the work rates of educable mentally retarded adults in a vocational evaluation center. Videotapes were presented individually to each participant; the tapes were stopped when off-task behavior occurred; and workers were asked how those behaviors affected their work. All individuals in the experimental group made at least 50% gains in productivity, while none of the control group members achieved this criterion.

Fifth, video may lead to new intervention strategies that help disabled learners control severe behavior problems. For example, Greelis and Kazaoka (1979) obtained videotapes of a 7-year-old retarded girl's tantrums and on-task behaviors in the classroom. After baseline, the child viewed 30-second segments of her on-task performance, followed by 60 seconds of cartoons, and 30-second segments of her tantrums, followed by 60 seconds of a blank screen. Tantrums decreased and remained low after the intervention was withdrawn.

Sixth, video promises augmented behavioral measurement, such as recording of complete response chains and assessment of complex behavior. Video also can enhance data analysis and estimates of the reliability of measurement (Powers & Handelman, 1984).

Seventh, the video medium offers new opportunities to address the generalization deficits displayed by people with severe developmental disabilities. Although clients may acquire many new skills and learn to control inappropriate responses, these

accomplishments are of limited value unless the new repertoires transfer to extra-treatment settings. Daoust, Williams, and Rolider (1987) successfully employed audiotapes and videotapes to mediate delayed consequences for the aggressive and self-injurious responses of an adolescent girl with severe retardation. Delayed consequences (rewards, compliance training, momentary manual restraint, and timeout) were first delivered in the clinic to decrease target responses at home; later, the parents used audiotape-mediated delayed consequences to alter their daughter's school performance.

Traditionally, many strategies for promoting transfer of skills from treatment to nontreatment settings have depended upon clients' verbal reports. Thus, training to achieve isomorphic relationships between verbal and nonverbal behavior, or between "saying" and "doing," is of particular interest because it appears to offer a means of programming generalization across settings and time. By reinforcing *accurate* verbal reports of nonverbal behavior, investigators have increased children's prosocial responses (Rogers-Warren & Baer, 1976) and their use of specific leisure materials (Israel & Brown, 1977) and have decreased hyperactivity and inattention (Paniagua, 1987) at different times and in different settings than those in which the verbal reports were made. Risley and Hart (1968) noted that their training procedures "developed a generalized correspondence between the verbal and non-verbal behaviors of these children such that their temporally remote non-verbal behavior could be modified by simply reinforcing their verbal behavior" (p. 280).

Perhaps partly as a result of requirements for verbal reports of temporally remote events, research that addresses verbal-nonverbal correspondence training with severely developmentally disabled learners is virtually nonexistent. It is precisely in this area, however, that video may hold special promise. For people with minimal language repertoires, videotapes may bridge the gaps between different settings and times, enabling them to report on their previously occurring (but presently visible) nonverbal behavior. The establishment of verbal control over nonverbal behavior, or the development of functional say-do relationships, could have an important impact on treatment efficacy for persons with severe handicaps.

SELF-MODELING FOR ADULTS WITH SEVERE HANDICAPS

There is a logical connection between deafness and visual media. Video self-modeling procedures appear especially appropriate for people who are hearing impaired. As early as 1976, Dowrick described techniques for editing videotapes that displayed the subject as model; in subsequent years, he documented the salutary effects of self-modeling for children with physical disabilities such as cerebral palsy (Dowrick, 1983) and spina bifida (Dowrick & Dove, 1980). To date, however, only a handful of studies have examined videotaped "self as a model" procedures with persons who are severely developmentally disabled, and none have described the use of these procedures to teach sign language. The pilot studies described next were carefully monitored to determine how to revise, redevelop, and refine procedures.

The participants in these studies resided in an habilitation center for deaf, mentally retarded adults in Sweden. They viewed themselves on videotapes that consisted of three brief segments: (a) an "interest catcher" showing the person engaging in some nontarget activity in a familiar setting (providing an opportunity for the subject to identify himself or herself), (b) footage showing the participant modeling a target response (the duration of which was extended during editing), and (c) a segment showing the participant enjoying a natural consequence of the target behavior. For example, the subject might first see himself seated at the kitchen table, then see himself using the manual sign for coffee, and finally, see himself getting a cup of coffee and drinking it.

Self-Modeling of Manual Signs

T.H., a 39-year-old deaf and moderately retarded man, had learned to use some manual signs (nouns); his receptive vocabulary of signs appeared to be larger than his signing repertoire. A self-modeling videotape targeted his use of the sign "I do not want to. . . ." T.H. was able to imitate a staff member who modeled the sign off camera during videotaping. He watched his tape once a day and frequently imitated the video model. On day 40, he used the sign contextually at a time when he was *not* watching the tape, and subsequently continued to use the sign spontaneously and appropriately.

Similar procedures were used with L.P., a 43-year-old woman with mild retardation who engaged in self-injurious and destructive behaviors. At mealtimes, L.P. used a few manual signs (e.g., "eat," "cheese," "coffee," and "butter"). Her self-modeling tape featured the target sign for milk, which she used in her coffee. L.P. watched her videotape once a day for 30 days. Fifteen days after her last exposure to the self-modeling tape, she began to use the sign for milk at mealtimes, but she did not use the sign in any other relevant context.

A third participant, T.P., age 25, was deaf and moderately retarded. She had a lengthy history of self-injury (biting her wrists). She used approximately 10 signs, all of which were nouns. The target sign, "I do not want . . . ," was viewed on a self-modeling tape once a day for 51 days. T.P. used the sign immediately before or during her reviews of the videotape, but never used it functionally in other situations or at other times of day.

Finally, O.S., age 38, who was deaf and moderately retarded, had not acquired any signs. He communicated with staff members by taking their hands and leading them to objects that he wanted or to situations with which he needed assistance. When his videotape was prepared, O.S. was able to imitate a staff member who stood off camera and modeled the signs for apple and coffee. O.S. viewed his videotape twice a day for 63 days; he imitated the signs for apple and coffee while he watched the tape, but he never used these signs at other times of day or in other settings. A fortnight after he had ceased to review his videotape, a staff member reported that he had spontaneously signed "apple." He immediately received the apple, but there were no further reports of unprompted signing.

These projects suggest that subjects' extant expressive and receptive signing

vocabularies may be predictors of the effects of video self-modeling procedures; to date, attempts to use self-modeling to teach a *first* manual sign have not been successful (cf., O.S.). It may also be noteworthy that T.P., who used only a small vocabulary of nouns, did not achieve functional use of a simple communication that included a verb.

Video Modeling of Toileting Skills

B.C., age 45, deaf and mildly retarded, had spent most of his life in an institution and had not yet learned how to clean himself after a bowel movement. When a videotape was prepared, a staff member modeled the relevant toileting skills, but the tape was edited to make it appear that B.C. was engaging in these behaviors. When B.C. first watched his tape, he appeared very confused; a week later, however, he approached the experimenter and signed, "You sly fox." B.C.'s underwear offered evidence that he was able to imitate "himself" after seeing the videotape. In evaluating this self-modeling procedure, it appears noteworthy that B.C. had an extensive signing vocabulary.

USING VIDEO WITH CHILDREN WITH AUTISM

On the other side of the Atlantic, other authors of this chapter were assessing video intervention strategies in a community-based treatment program for children, youth, and young adults with autism. Although these investigations varied with regard to settings, target responses, and characteristics of participants, all used videotaped models of the subjects themselves.

Videotapes in Intervention for Self-Injury

When first seen at age 4 years, Casey's head hitting had altered the configuration of her skull. She presented with multiple bruises, wearing a protective helmet. At school, an intervention package that included a rich differential reinforcement of other behavior (DRO) schedule, gradual fading of restraints, and a delayed reporting system ("notes" from her teachers that determined later access to special rewards) eventually eliminated self-injury. She began to acquire expressive language and academic skills.

At age 7, however, Casey continued to self-injure at home and on rides to and from school, at rates as high as 660 head hits per hour. Head hitting was usually accompanied by loud crying and screaming, kicking and tapping on objects, and "picking" with her fingernails at various parts of her body, causing bruises and contusions. Many hours of parent training and home programming did not alter these dysfunctional responses. Because Casey's treatment-setting repertoire was very different from her behavior in the presence of family members, self-modeling appeared to be a promising intervention. Thus, videotapes were made using Casey herself as a model of noninjury.

Videotapes of appropriate car ridership were made in the school driveway, with a

therapist running beside the slow-moving vehicle to help Casey refrain from self-injury. The home-to-school tape showed Casey and her mother leaving the house and getting into the family automobile and then showed Casey (with hands in lap) talking to her mother. The school-to-home tape was the same, except that it began with a scene in which Casey and her mother left school. Videotapes of appropriate activities at home (e.g., playing the piano, playing with toys and siblings, eating meals, and preparing for bed) were also made with a therapist present and, like the ridership tapes, were edited to present only good performances.

At school, Casey began daily reviews of a 2-minute tape of her car ride from home to school. Although she visually attended to the video screen, self-injury continued during rides. Therefore, her parents were given a video camcorder and were asked to tape occurrences of self-injury while Casey was sitting in the car before the ride to school began. When Casey arrived at school, she and her mother were met by a therapist who obtained the parents' data and the videotape. Subsequently, Casey saw a tape of her self-injurious behavior and received a 30-second overcorrection procedure (Foxx & Azrin, 1973) consisting of rapid, guided hand movements; if no self-injury was reported, she reviewed a tape showing an appropriate ride from home to school and subsequently selected preferred activities or snacks. By day 18, self-injury was eliminated on the way to school, but continued to occur regularly during the ride from school to home and at home with her family. When the school-to-home videotape was scheduled for daily review, it had no impact on self-injury. But again, the differential consequences (overcorrection or special activities immediately following viewings) were applied. After day 24, parents' reports indicated that self-injury had ceased on rides from school to home.

Casey then began to review self-modeling tapes of her appropriate performances at home, and on this third intervention video self-modeling decreased self-injury at home without the addition of the overcorrection procedure. On those few occasions when she did self-injure, Casey attempted to negotiate with her parents to prevent them from getting the camera. The parents reported isolated episodes of self-injury over a 3-month period; then these reports ceased. A follow-up interview with the parents confirmed that self-injury was no longer observed at home.

This important therapeutic outcome encouraged us to undertake a controlled investigation of video self-modeling. Casey was again selected as the participant. It was noted that she sometimes exhibited certain responses—foot stomping, bruxism, pinching and scratching herself, tapping on objects, and "fussing"—that had been part of her earlier repertoire of self-injury. Continued practice of these behaviors seemed to enhance the possibility that head hitting could be reinstated.

Three classes (math, reading, and spelling) were selected for investigation because preliminary data showed that levels of potentially self-injurious behaviors were highest in these sessions. Three different teachers conducted these learning activities, which were scheduled Monday through Friday at 9:00, 10:30, and 11:30 A.M., respectively. Before research began, videotapes were obtained in each class and were edited to show only good performances. Throughout the study, camera operators (nonclinicians unfamiliar to Casey) taped 15 minutes of each class; observers later retrieved data on potentially self-injurious behaviors from the videotapes using a

procedure of time sampling within 15-second intervals. A multiple-baseline design (Baer, Wolf, & Risley, 1968) across classes was used to assess the effects of self-modeling and video-mediated consequences.

During baseline (self-modeling), Casey watched 2-minute tapes of her own appropriate performances immediately before each class. The data showed that self-modeling tapes alone did not result in socially significant decreases in potentially self-injurious behavior.

When delayed consequences were added, Casey continued to view her good performance prior to each class, but also was taken to a nonacademic setting (a conference room) 20 minutes after each class; the 20-minute delay was used to review classroom tapes and to flag relevant segments. A therapist showed Casey 2 minutes of selected footage of the most recent videotape of her classroom performance. The absence of potentially self-injurious behaviors resulted in preferred activities, while the presence of tapping, stomping, bruxism, or other target responses produced the previously described overcorrection procedure. This treatment package was successively introduced in each of the three class sessions, producing rapid and robust changes in the levels of target responses.

It is noteworthy that Casey initially responded to the overcorrection contingency in two ways: (a) she ceased to exhibit target responses that had been followed by overcorrection, but during the next class sessions displayed different target responses, and (b) she began to close her eyes during video segments that showed target responses. When the latter behavior occurred, the videotape was placed on pause until she opened her eyes.

This successful intervention package is of special interest because video-mediated delayed consequences, delivered in a nonacademic setting, effected changes in Casey's behavior in three different classes, at different times of the day. It has been suggested that this generalization across persons, settings, and times (a central issue in autism treatment) might, in the context of video research, be dubbed "remote control."

Self-Modeling of Conversational Skills

Two youths with autism, Rory and Don, ages 19 and 15, had been in treatment for 12 years; in intervention settings, Rory's aggressive and disruptive behavior and Don's self-injury had decreased to low levels. Both youths were established "TV watchers," that is, they had been taught to visually attend to the screen and to answer questions about visual stimuli presented on video. In addition, clinical data indicated that both boys could imitate motor and verbal behavior modeled in vivo. Although they had acquired functional expressive language and frequently used phrases and simple sentences when interacting with treatment agents, they rarely conversed with peers. Their social interaction repertoires with adults suggested that self-modeling tapes of peer interaction could be obtained readily; this was not the case.

A month of training was necessary in order to tape self-modeling of peer interaction. Rory, who had some reading skills, eventually learned to use a script presented on a large, off-camera easel. Don used an audio headset and learned to

repeat verbal prompts from a therapist who stood outside the classroom and observed via sound system and one-way window. Throughout training, neither youth responded to the other; both were dependent upon off-camera prompts.

After baseline measures documented negligible levels of peer conversation, the two youths watched their self-modeling tapes for 5 minutes three times per day but failed to interact during observation periods. Rewards for visually attending to the monitor did not increase peer conversation. Subsequently, simplified self-modeling tapes were made and the youths were rewarded for imitating their own videotaped behavior (e.g., standing up, sitting down, and saying one- to six-word utterances). During training, they met criterion on imitation of the simplified tapes, but they still failed to interact at scheduled observation times, even after three daily viewings of the peer-interaction tapes and the simplified tapes.

Finally, a therapist prompted and rewarded imitations of the peer-interaction tapes as the youths viewed them. Peer interactions during probes continued to be minimal.

The length of training time required to obtain self-modeling tapes may have been a predictor of outcome. Retrospectively, it appeared that we may have erred in targeting peer-interaction responses that were totally absent from the subjects' repertoires. Although following training the videotapes cued imitation, the presence of a peer in the environment did not evoke conversation.

Self-Modeling and Delayed Consequences to Decrease Noncontextual Laughing, Crying, and Vocal Noise

Scott entered a group home and school program at age 7. When first seen, he was mute, not toilet trained, and spent most of his waking hours attempting to shred clothing, linens, house plants, and other available materials and engaging in noncontextual laughing, crying, and noisemaking.

By age 11, he had acquired a small expressive language vocabulary, as well as many self-care, leisure, and home-living skills, but continued to display inappropriate laughing, crying, and vocal noise. For purposes of data collection, these three response classes were lumped together under the heading of "disruptive behavior."

A multiple-baseline design across three school sessions (verbal imitation, receptive language, and leisure skills) was used to assess the effects of self-modeling and video-mediated delayed consequences. These sessions were scheduled at 9:30 A.M., 11:00 A.M., and 12:00 noon, respectively, and were conducted by three different teachers, all of whom were uninformed about the purposes of the study. Videotaping began 60 seconds after Scott was seated in a classroom, and continued for the next 17 minutes. Data were later collected from videotapes by independent observers who scored the occurrence/nonoccurrence of disruptive behavior in 15-second intervals for 15 consecutive minutes, beginning after the first 60 seconds of videotape.

Prior to baseline, Scott was taught to identify himself in videotapes of his usual activities. When a trainer pointed to his image and asked, "Who is this?," he learned to respond "Scott" or "me." Training continued until he achieved criterion—8 of 10 correct responses in three consecutive session.

During baseline, Scott viewed no videotapes, with the exception that, after the last baseline session in his 12:00 P.M. class, he saw six taped segments, each 10 seconds in length. During each of these screenings, he was asked, "Who is this?," and he correctly responded. Footage of appropriate performances alternated with segments showing disruptive behaviors. After viewing appropriate performances, Scott received praise, tickles, and preferred snacks; after viewing disruptive segments, he engaged in contingent exercise (running in place). This "preview" of positive and corrective consequences occurred the day before treatment began in his 12:00 P.M. session.

During treatment, an experimenter scanned the videotapes immediately after they were made and selected three 10-second episodes of disruptive behavior or three 10-second segments of appropriate behavior. If less than three examples of disruptive behavior had been taped, one or more segments was repeated. If no disruptive behavior was taped, three examples of appropriate behavior were chosen. No later than 15 minutes after the end of a class, Scott and the experimenter went to a meeting room where he either (a) viewed three exemplars of his appropriate behavior and received three periods of preferred activities or (b) viewed three illustrations of his disruptive behavior and engaged in contingent exercise after each screening. During each 10-second videotape, the experimenter pointed to the screen and asked, "Who is this?"

Scott's levels of disruptive behavior dropped considerably when self-modeling tapes and delayed consequences were sequentially introduced. In his 12:00 noon, 11:00 A.M., and 9:30 A.M. classes respectively, mean percentages of 15-second intervals scored for disruptive behavior were 65%, 51%, and 60% during baseline and 15%, 17%, and 16% during treatment. Interval-by-interval interobserver agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100 (Sulzer-Azaroff & Mayer, 1977). The means and ranges of interobserver agreement for each class were: 12:00, mean = 94% (range = 77% to 100%); 11:00, mean = 93% (range = 78% to 100%); and 9:30, mean = 94% (range = 75% to 100%).

Although Scott's classroom performance was variable, teachers perceived reductions in his disruptive behaviors as significant. After treatment began in his 12:00 class, the teacher spontaneously reported that she was becoming more skilled in working with Scott; similarly, after intervention began in the 11:00 session, that teacher also reported improvement in classroom behavior. In reviewing videotapes, the experimenters noted changes in the topography of Scott's behavior in all three classes after treatment began; loud screams and ongoing vocal noise were replaced by brief, low-volume vocalizations.

Ten months later, Scott was taken to the setting in which video reviews had occurred, and with "snow" on the monitor, he was asked, "Who is this?" On 10 consecutive trials, he replied, "Scott," or "me." His responses to snow on the monitor pose several possibilities. Perhaps he never recognized his own image on videotape, but learned that the question, "Who is this?," when paired with the monitor and/or the experimenter, required the responses "Scott" or "me." Or perhaps this severely language-delayed youth *did* recognize himself on videotape, but had no language to

describe snow on the monitor. This dilemma illustrates one of the many methodological considerations that will be important in exploring, specifying, and enhancing the effectiveness of video self-modeling procedures for people with severe developmental disabilities.

SOME RECOMMENDATIONS ON METHODOLOGY

Developmentally disabled subjects vary widely in observation and imitation skills, language repertoires, and prompt dependency. Self-modeling procedures often include a large number of variables in addition to those identified as the primary independent variables (i.e., observation of video images of oneself). Our early incursions into video self-modeling have raised many questions and have suggested a number of methodological considerations that appear relevant to future investigations.

1. Detailed descriptions of subjects aid in determining when self-modeling procedures may be viable. Self-modeling was effective when a deaf learner had previously acquired manual signs, but was not effective in teaching a first sign. And there were major differences in the performances of high-functioning children with autism (cf., Charlop & Milstein, 1989) and low-functioning participants such as Rory and Don.
2. Preinvestigation assessment of subjects' skills may help to avoid underestimates of the potential of self-modeling procedures. Does the participant visually attend to the monitor? Can she label stimuli presented on the monitor? Can he discriminate images of himself from other persons or objects presented on the screen? Can she imitate responses that are modeled on video? These assessments are needed in order to identify behavioral repertoires that are prerequisite to participation in video modeling studies.
3. Isolation of relevant videotaped stimuli can rule out confounding variables. Typically, videotapes present multiple cues. Auditory stimuli could include treatment agents' voices and/or instructions, as well as other sounds embedded in the environment used for taping. Similarly, visual stimuli may encompass many aspects of the setting, for example, equipment and materials, caregivers, and other clients. Depending upon the purposes of a given investigation, it may be useful to turn off the sound, to display target video images against a plain background, or to edit out auditory and visual cues that are not necessary to the study.
4. The identity of the camera operator is important. If the camera operator also screens the resulting videotapes, this individual's presence may promote generalization across settings and times. This appears most likely when there is regular, ongoing taping and review of tapes (cf., the 1971 investigation of workers in a vocational evaluation center by DeRoo & Haralson) and perhaps less likely when a single videotape is created (cf., the manual signing tapes discussed earlier). In the studies of Casey and Scott described earlier, camera

operators were unfamiliar persons who were never present during videotape reviews.

5. The learner's history with the person who presents videotapes for review may impact on the results of the investigation. If this person is present in settings where new repertoires are ultimately to be displayed, the possibility remains that the treatment agent, rather than the videotapes, may mediate generalization across settings and times. Indeed, in some interventions, this possibility has been intentionally exploited for the purpose of transferring stimulus control from primary treatment agents to family members (cf., Daoust, et al., 1987).
6. The use of delayed contingencies can be preceded by video self-modeling to establish if videotapes alone may result in behavior change. Casey, for example, reviewed self-modeling tapes throughout each successive baseline condition before delayed contingencies were introduced, providing a demonstration that self-modeling alone was not sufficient to alter her potentially self-injurious behavior. In the absence of self-modeling baselines, it is impossible to determine whether video models, delayed consequences, or a combination of these is responsible for behavior change.
7. The use of video self-modeling procedures to achieve verbal-nonverbal correspondence across treatment and nontreatment settings has not yet been explored, but appears enticing. Such studies will be expensive, since they will require camera operators to regularly visit extratreatment environments.
8. Comparative analyses of video modeling and video self-modeling are needed. An extensive literature documents the effectiveness of video modeling across a variety of subject populations and target responses. Do video modeling and video self-modeling procedures produce differential effects? This important question has not yet been addressed.

A FINAL NOTE

Bud was a 5-year-old youngster with autism; his lengthy history of toe walking resulted in shortened tendons. Thus, he began to wear ankle weights and his therapists frequently reminded him, "Heels down." Some weeks later, Bud was asked to "point to heels"; he was unable to do so. When applied to video self-modeling, this anecdote can be viewed as a warning or an enticement. Can video images assist severely language-delayed people who cannot yet identify the referents for words such as "heels"? Is complex language a prerequisite for video playback procedures, or do video images supply useful feedback to people who cannot benefit from verbal descriptions of behavior?