

THE USE OF SELF-MODELING AS AN INTERVENTION IN SCHOOL PSYCHOLOGY: A CASE STUDY OF AN ELECTIVE MUTE

ABSTRACT

Self-modeling is defined as the positive change in behavior that results from repeated observations of oneself on videotapes that depict only appropriate or desired behaviors. Self-modeling is an effective, short-term, and relatively inexpensive technique that can be used by school psychologists in educational settings. A clinical case study is presented in which an electively mute child is completely remediated within five, 5-minute treatment sessions. It is argued that the self-modeling procedure is perhaps the least restrictive and least intrusive of interventions that can be employed with elective mutism and other categories of dysfunctional behavior.

Perhaps the primary contribution of social learning theory has been the analysis of learning through witnessing a model (Bandura, 1986). To effect meaningful change in children's behavior, modeling techniques usually require only six to eight sessions on average (Gelfand, Jenson, & Drew, 1982). They also are relatively inexpensive to administer and nonintrusive. Of the variety of different modeling procedures that are described in the literature, self-modeling may be one of the more appropriate techniques available to school psychologists to use in educational settings. Self-modeling is defined as the "behavior change that results from repeated observations of oneself on videotapes that show only desired behaviors" (Dowrick & Dove, 1980, p. 51).

Although there are few studies using self-modeling as an intervention in ongoing educational settings, those that have been conducted indicate that it is an effective treatment for a variety of dysfunctional social and interpersonal behaviors. For example, Kehle, Clark Jenson, and Wampold (1986) used the self-modeling intervention with four behaviorally disordered children who were placed in a self-contained special education classroom. They employed an ABA withdrawal design, replicated three times, with a control subject and a follow-up phase. The children were videotaped in their self-contained special education classroom during regularly scheduled instructional activities. The videotapes were edited to remove all occurrences of the children exhibiting disruptive or inappropriate behaviors. The three experimental children then individually viewed their 11-minute edited videotape depicting only appropriate classroom behavior. The control child viewed his 11-minute unedited videotape which depicted his typically aggressive, noncompliant, and disruptive classroom behavior.

The results showed dramatic effects for the three experimental children, and also for the control child after introduction of the self-modeling condition. The inappropriate classroom behavior rate for the children in treatment was reduced from a baseline of 46% to an average of 11%. Six weeks after the termination of Educational Psychology, Box U-64, University of the study, follow-up observations indicated that the positive treatment effects were maintained and even slightly improved to the extent that the children's inappropriate classroom behaviors occurred only about 8% of the time.

In another study using self-modeling in an educational setting, Kahn, Kehle, Jenson, and Clark (1990) employed a pretest-posttest control group design to compare the efficacy of self-modeling with cognitive-behavioral and relaxation therapy interventions. The four conditions were randomly assigned to 68 depressed children. Kahn et al. assumed that videotaping of behavior responses incompatible with processes of depression (i.e., smiling, verbalizing positive self-statements and attributions), would facilitate self-modeling resulting in both behavioral and affective gains.

The results indicated that all three experimental treatment groups produced substantial and significant gains to the degree that there was an absence of clinically significant depressive symptomatology across all groups. Although all three short-term school-based, interventions did not involve an inordinate amount of staff time or expense, the self-modeling intervention delivered the best costbenefit ratio. It involved only 120 minutes of the students' time and offered the least restrictive intervention.

Children who do not verbally respond in self-selected situations are termed "electively mute." Interestingly, these children often freely talk in some social situations or particular settings, but do not emit vocalizations in other settings. Historically, the condition has been very resistant to attempts at remediation (Dowrick & Hood, 1978). In those studies that do report successful treatment of elective mutism there is usually a reliance on behavioral interventions involving either stimulus fading or behavioral shaping (Kratochwill, 1981, Kratochwill Brody, & Piersel, 1979; Labbe & Williamson, 1984). These traditional, behaviorally-based interventions, as Dowrick and Hood (1978) point out, typically require a highly trained staff, a clinical setting, and a relatively great amount of financial and time investment. Also, the traditional approaches often report difficulty with the generalization of improved speaking behaviors to different social situations or settings. For example, Brown and Doll (1988) used a whole-class reinforcement program to induce peer-directed speech in a 6-year-old elective mute. Subsequent to this intervention, they employed a combination of a talk-light and reinforcement to

increase the frequency of the child's audible speech. Although the frequency of soft speech increased outside of the experimental situation, generalization of audible speech was not apparent.

Pigott and Gonzales (1987) used self-modeling to treat a third-grade elective mute male in a regular educational setting. The child was academically above average and had evidenced periods of elective mutism for over 4 years, however, he would respond to questions if his mother and brother were present in the classroom. Pigott and Gonzales constructed classroom videotapes of him while his mother and younger brother were present. The edited self-modeling intervention tape depicted the child responding to teacher questions, and raising his hand to volunteer to answer various questions. The edited video-tapes were then viewed by the child, while in his own home setting, over a period of 2 weeks. The results clearly demonstrated that both behaviors answering direct questions and volunteering to answer questions, increased substantially. These results were maintained over the academic year.

In the first published study to employ a self-modeling intervention to treat elective mutism, Dowrick and Hood (1978) used a more complex design. The target children were a boy and a girl who did not speak in the classroom setting. They filmed the children talking in their home environments and inserted scenes of everyday classroom activities, such that the edited film depicted the children freely talking in the classroom setting. These edited films were shown to the children. The results indicated that within eight sessions of watching their respective edited films, the children's classroom verbal interactions, although modest, were of sufficient frequency to permit normal instruction to occur. After 6 months, follow-up observations showed maintenance of initial gains.

Dowrick and Hood used a multiple baseline across subjects, with a within subject control, ABA design, allowing them to judge the relative effects of self-modeling compared to traditional peer modeling procedures. This was accomplished by showing the edited films to the two mute children in four phases of four sessions each. In the first phase, both children together viewed the edited film of the girl, and in the second phase they both observed the boy's edited film. This procedure was then alternated four times. Dowrick and Hood could thus determine the relative effects of self- and peer modeling within a single design. The results indicated that the self-modeling intervention film was vastly superior to the effect of the peer-modeling film, which had no discernible effect. This was the first study to show that under controlled circumstances, self-modeling was significantly more effective than peer-modeling. In the discussion of their results, and with particular emphasis on the finding that peer-modeling was not effective, Dowrick and Hood cite Bandura's

(1977) notion of insufficient perceived "self-efficacy" as an explanation for why electively mute children are responsive to self-modeling but not to peer modeling.

METHOD

Subject and Family Background

The present clinical case study involved a 6-year-old electively mute male. Background information on the child's family indicated that he was the youngest of three sons. The mother was characterised as extremely quiet and soft spoken. In addition, she presented symptoms of depression and agrophobia. The single parent family relied primarily on public social services for support. The elective mute child's 12-year-old brother is enrolled in a trainable mentally handicapped class where life and vocational skills primarily are addressed. This brother, who has an excellent positive relationship with the subject, tended to express himself through the use of various "animal-like" noises. A second brother, 9 years old, also is the recipient of special education services. This brother is physically aggressive and has been diagnosed as possessing the Fragile X syndrome.

Educational Background

The elective mute child's behavior has been monitored for over 3 years by the school system. In 1985-86, attempts were made to have him evaluated by the school system's preschool evaluation team, but the mother refused permission. In 1986-87, the child attended the system's Headstart program which, according to teacher report, he really enjoyed. When he first entered Headstart, he spoke in extremely quiet, almost inaudible whispers. By the end of the year, he was completely mute. He would not emit any vocalization to anyone in the school setting, including his own mother if she was present at Headstart.

In 1987-88, he enrolled in kindergarten. Due to his total lack of verbal communication, school personnel expressed concern over his placement in regular kindergarten activities. Consequently, he was placed in a developmental kindergarten class. Within a brief period, the kindergarten staff noticed that the child, although completely mute, was academically capable and he was then reassigned to a regular educational kindergarten setting. Again, although completely lacking any verbal interaction with his classmates or teachers, he appeared to thoroughly enjoy the classroom learning experiences and participated in all activities that did not require him to interact verbally. Interestingly, the elective mute's classmates accepted him and even offered excuses for his nonverbal behavior and would often intercede on his behalf. Numerous and varied attempts by countless professional staff had no effect.

The child simply refused to talk. Nevertheless, the mute child successfully completed kindergarten and entered the first grade.

The staff intentionally placed him in a first grade that would involve different children. It was hoped that the need to interact with unfamiliar children would facilitate his verbal interactions. In 198889, during the first day in the first grade, another student who had been with the mute child in kindergarten, informed the class that this child did not talk and the class accepted this fact.

According to the mother, the child conversed freely in the home setting. The mutism was thus dependent on clear situational boundaries.

Procedure

Baseline data were recorded during recess activities and during regular classroom activities. No verbal interactions or vocal sounds at all were evidenced during baseline (see Figure 1). The mute child would not even respond to clear provocations by other children. Two examples of this were recorded on the playground during recess. One instance involved the mute child waiting in line for his turn to use the jungle bars. An older girl suddenly walked up to the waiting children and shoved the mute child out of her way in order to cut into line. The mute child responded by displaying a "very sad" facial expression. He got back into line behind the older girl, but he did not emit any sound of protest. During this same recess period, when the children were lining up to go back into the school, an older boy standing behind the mute child proceeded to "flick" his finger at the mute child's neck. Again, the mute child responded to this provocation by simply displaying a "very sad-face. He did not utter any sound in an attempt to get the older boy to stop tormenting him.

The mother was brought to the school and, in the child's regular classroom, instructed to ask the child nine questions (i.e., "What is your favorite flavor of ice cream?" "Who is your best friend?" etc.). No other person was present in the classroom, and with some prodding on the part of the mother, the child did verbally respond to her questions. The mother child interaction was videotaped. Immediately afterward, and during regular class activities in which all the children were in the room, the classroom teacher was instructed to ask the same nine questions to the mute child. As expected, the child did not respond.

The tape was edited to remove all scenes of the mute child not responding to the teacher's questions and scenes were inserted of him verbally responding to his mother's questions. Thus, on the edited tape, which was approximately 6 minutes in duration, it appeared that the mute child was responding, during regular class activities, to the teacher questions.

This edited videotape was then shown back to the mute child on three different occasions over a period of a week (see Figure 1). The treatment sessions occurred in a room adjacent to the child's classroom. The only individuals present were the experimenters and child. There were six episodes on the edited videotape which showed the child supposedly verbally responding to the teacher's questions. To insure attention to the edited tape, immediately following each of these verbal responses, the child was reinforced with either a baseball card or a piece of peppermint candy. The child was also informed that he would receive a toy (i.e., G.I. Joe) contingent upon marked improvement. Consequently, the mute child experienced 6 reinforced trials during each of three treatment sessions distributed over a week resulting in a total of 18 trials. No effect was apparent.

With the mute child's permission, which was given by a nod of his head, it was decided to show the edited tape to the entire class while he was present. This edited intervention tape was introduced to the first grade class by stating to the children that the mute child can, in fact talk and that we would like to show him talking to the entire class. The children, for the first time, saw and heard the child talk. The class showed signs of elation. Unfortunately, for the next three school days the child evidenced no instances of even the slightest verbal interaction with his teacher or classmates.

After entertaining several possible hypotheses for why the mute child was not responding as expected to the self-modeling intervention, it was concluded that the most plausible reason for the lack of effect was that the edited intervention tape did not depict a sufficient amount of time showing the child talking. During the entire 6-minute edited intervention tape, the mute child was shown actually talking for less than 4 seconds. It was decided to construct a new tape that would include longer periods of time showing the child actually verbally responding to questions. The construction of the second edited intervention tape followed the same procedure that was involved in the construction of the first tape. The mother was brought to the school and alone with her child in his classroom asked the same nine questions that were included in the first intervention tape; however, the mother was also instructed to try to get her child to elaborate as much as possible in his responses to her questions. Again, with some prodding on the part of the mother, the child did respond with some elaboration to all of the nine questions. Immediately after videotaping the mother-child interaction, the children re-entered their classroom. The classroom teacher, during a regularly scheduled class activity, was instructed to ask several children, including the mute child, to respond individually to the same nine questions that the mother had asked her child just minutes earlier. This activity was videotaped. As expected, the mute child did not respond to any of the teacher's nine questions. As in the construction of the first unsuccessful intervention tape, the second tape was

then edited to remove all scenes of the mute child not responding to the teacher's questions, and scenes of his appropriate verbal responses to his mother's questions were added. Consequently, the second edited videotape depicted the mute child supposedly responding verbally in an appropriate manner to his teacher's nine questions. The total time of actual talking was increased from 3.78 seconds on the first edited intervention tape to 13.47 seconds on the second edited tape. The total length of time of the second intervention tape was 5 minutes. This second intervention tape was shown back to the mute child in individual sessions on two different days (see Figure 1). Again, following each of the nine instances on the edited tape depicting the child's appropriate verbal response to the teacher's questions, the tape was stopped and the child was reinforced with either a baseball card or a piece of peppermint candy. Therefore, during this phase of the study, the child should have received 9 reinforced trials during each treatment session resulting in a total of 18 reinforced trials over the two sessions. However, reinforcement proved unnecessary after the first treatment session.

RESULTS

On the second day of intervention, using the second intervention tape, the mute child abruptly began to converse freely with the experimenters. The principal and other teachers were quickly summoned to witness the child's conversation with the experimenters and he also freely conversed with these individuals. After this episode of the child's first verbal interaction in the educational setting in over 3 years of observation and repeated attempts at remediation, we had the child introduce to us all of his classmates. He did this most willingly and his classmates were ecstatic with appreciation for his "newly acquired" talking skills.

We also brought the formerly mute child to the University to discuss his elective mutism with graduate psychology students. This 6-year-old, formerly elective mute child, confidently walked into a rather large room and sat down at a table in front of approximately 25 strange adults, folded his arms and stated, "Well, what is it you want to know?" He proceeded to answer several questions about himself and, most interestingly, his response to the question, "Why did you not talk?" was, "I don't remember not talking." It is also significant to note that his Elementary School staff gave this child the "Student of the Month Award," for his classroom participation and academic accomplishment.

After 7 months, follow-up indicated that the formally mute child was functioning extremely well. He freely communicated verbally with his peers and faculty. He also volunteered to assist the authors with other mute children who may be in the district.

DISCUSSION

Perhaps electively mute children feel inefficacious about successful verbal interaction in the classroom setting. Considering that the children described by Dowrick and Hood (1978), and the child in the present case study, had been exposed to several years of multiple peer models and had still elected not to vocalize, the behavioral changes that occurred may not be explicable by the typical observational learning constructs (Bandura, 1986). A tenable reason for why self-modeling is superior to peer-modeling with electively mute children is that these children possessed the verbal skills but lacked the self-belief that they could successfully employ the skills in classroom activities. In Bandura's (1986) social cognitive theory, behavior change is mediated by self efficacy. Self-modeling alters efficacy beliefs, which in turn change performance. If this line of reasoning is valid, then elective mute children, through viewing edited videotapes depicting themselves talking in a classroom situation, learn to believe that they can successfully communicate with their peers and teachers, and subsequently behaved in accordance with that belief, and are reinforced for doing so.

The majority of studies examining the efficacy of self-modeling as an intervention to enhance children's emotional and social functioning show positive results. The intervention is relatively simple and inexpensive to use and requires little time to implement. Further, and perhaps most significantly, the procedure is well suited to fit the least restrictive components of a hierarchical educational model.

GRAPH: FIGURE 1. The percent of verbal responses to teacher questions emitted by a 6-year-old elective mute child across baseline, first intervention, second intervention, and follow-up phases. ([*] Indicates days that the child was shown the edited intervention videotapes. [**] Indicates the day that the edited videotape was shown to the entire first-grade class.)