

Reducing Chronic Noncompliance in an Individual With Severe Mental Retardation to Facilitate Community Integration

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Abstract: Behavioral techniques facilitated the community integration of a young adult with severe mental retardation, which was jeopardized due to his noncompliance and severe aggression. Positive reinforcement and nonexclusionary time-out were employed to address noncompliance in his school and home environments. At school positive reinforcement was provided whenever the client walked a specified distance while either entering or leaving the school building without sitting down. If the client did sit down inappropriately, he was placed in a 5-minute nonexclusionary time-out. A similar procedure was carried out at home by the client's mother. Results showed that inappropriate sitting decreased and eventually reached a zero level. The program also reduced his aggression, which was prompted by physical carrying by others.

Integrating individuals with severe mental retardation into community life is of critical importance due to the closure of mental retardation institutions and increasing numbers of people with severe mental retardation residing in the community (Braddock & Heller, 1985; Rowitz, 1989). Their integration is often threatened because of behavior problems and poor social skills (Davies & Rogers, 1985; Spangler & Gilman, 1985), and typical forms of community therapeutic services are often inadequate to assist them (Jacobson & Ackerman, 1988; Matson, 1984). The present study was designed to demonstrate the utility of behavioral techniques in facilitating the community integration of a young adult with severe mental retardation. His community placement was in jeopardy due to noncompliance, which involved a refusal to walk and whenever anyone attempted to carry him, frequent severe aggressive outbursts.

Noncompliance is a prevalent problem among individuals with mental retardation, and investigators have examined a variety of behavioral techniques to address it. Russo, Cataldo, and Cushing (1981), for instance, employed a reinforcement procedure for three children with

developmental delays that consisted of administering a set of requests. Each time the child complied, a small edible was supplied. The reinforcement condition not only improved compliance, but decreased negative behaviors for which there were no direct contingencies. Mace et al. (1988) found that training two elementary school students with special needs to engage in eye contact improved their compliance to instructions.

Utilizing a time-out consequence is another behavioral procedure that has reduced noncompliance among individuals with mental retardation. Parrish, Cataldo, Kolko, Neef, and Egel (1986) used time-out for inappropriate behavior with a child who had mental retardation. A contingent observation procedure not only reduced his misbehavior, but also improved his compliance to adult requests. Roberts (1988) also reported that a reduction in noncompliance occurred when a time-out consequence was employed for noncompliant behavior while compliance was concurrently reinforced.

Other investigators have compared the effect on reducing noncompliance of interventions employing only reinforcement with those involving a time-out consequence. Walle, Hobbs, and Caldwell (1984) studied the effects of praise and time-out on noncompliance in 28 children with conduct problems. They found that both the use of time-out alone and time-out and praise combined resulted in significantly less noncompliance than when praise was employed in isolation. Wahler and Fox (1980) also discov-

ered the superiority of a time-out contingency in improving compliance in young children. Although the use of tokens for quiet toy play initially reduced noncompliance in home settings, reinforcement alone did not maintain a low level of noncompliance until a time-out procedure for noncompliant behaviors was utilized.

Most investigators of noncompliance involving developmentally disabled populations define the behavior as a failure to respond to simple verbal requests (e.g., Hamlet, Axelrod, & Kuerschner, 1984; Mace et al., 1988; Neef, Shafer, Egel, Cataldo, & Parrish, 1983; Parrish et al., 1986; Russo et al., 1981). In the present study, however, noncompliance involved a young man with severe mental retardation who sat down and refused to walk during transition periods. Such behavior is commonly observed in special education programs. Refusal to walk by sitting down interferes with the orderly transportation of students during transitional times of the school day and creates difficulties for staff members. Children and young adults with developmental disabilities who express noncompliance at home by refusing to leave the house often become socially isolated. Despite the prevalence of this problem, few investigators have evaluated the effect of behavioral interventions during periods of transition (Sainato, Strain, Lefebvre, & Rapp, 1987).

In the present study positive reinforcement and nonexclusionary time-out were utilized to reduce inappropriate sitting and refusal to walk during transition times in multiple environments. Behavioral interventions have been effective in teaching walking and transportation skills to disabled populations (Burgio, Burgio, Engel, & Tice, 1986; Gruber, Reeser, & Reid, 1979; Horner, 1981; Horton & Taylor, 1989; Marchetti, Cecil, Graves, & Marchetti, 1984; Marchetti, McCartney, Drain, Hooper, & Dix, 1983; Padgett, Garcia, & Pernice, 1984; Robinson, Griffith, McComish, & Swasbrook, 1984; Sainato et al., 1987; R. Walker & Vogelsberg, 1985).

In two studies investigators addressed behaviors interfering with independent walking by employing a response cost consequence for wandering (Padgett et al., 1984) and improper posture (Horner, 1981). Nonexclusionary time-out was used in the present investigation to determine whether it would decrease a chronic form of noncompliance that had interfered with the independent walking since early child-

hood of a young adult with mental retardation residing in the community. This intervention has previously reduced disruptive behaviors in institutionalized retarded populations (Foxy & Shapiro, 1978; Huguenin & Mulick, 1981).

Method

Participant and Settings

The subject was an 18-year-old male ("Mike") with Down syndrome and severe mental retardation who lived with his parents. He had no pronounced physical abnormalities and had echolalic speech. Mike communicated with expressive speech infrequently, often using physical gestures to indicate his wishes. He was not toilet trained and needed assistance in performing basic self-help skills. Mike's social skills were poor, and he had a long history of noncompliance beginning in early childhood. Whenever he was asked to do something against his wishes, he typically sat down and refused to move.

When treatment began, Mike was refusing to leave or walk to his school bus on most school days. This form of noncompliance was occurring in both school and home. Because of his physical size, it was extremely difficult for his teachers and parents to move him, and he usually became very aggressive when physically carried. Teachers, students, and Mike's parents had been severely injured during his aggressive episodes. He attended a school program in a suburban community of eastern Massachusetts for students with severe developmental disabilities. Mike had been previously suspended for a one-week period from this school for inflicting a serious bite on another student.

Response Measurement and Reliability

Noncompliance was the target behavior chosen in Mike's school and home settings during the times when he was in route to and from his school bus. *Noncompliance* was defined in the school setting as sitting on the ground or on the floor and refusing to walk while being escorted by a staff member from the school bus to his classroom and vice versa. A frequency recording procedure was employed at school whereby teaching staff members recorded the number of times that Mike sat down inappropriately in 5-day periods for both morning arrivals and afternoon departures. In the home setting, non-

compliance was also defined as sitting on the ground or front steps and refusing to walk when his mother escorted him to and from the school bus, which parked in front of his home. She also recorded the number of times that Mike sat down inappropriately in 5-day periods during these transition times.

A second independent observer recorded occurrences of inappropriate sitting when teaching staff escorted Mike from the classroom to his school bus. Mike's level of noncompliance and the intervention procedure conducted at this transition time were monitored weekly throughout all phases of the study. Reliability of data collection was determined by randomly selecting 10 sessions where two observers independently recorded Mike's target behavior. The level of interobserver agreement was determined by comparing the total number of times each observer recorded the target behavior (sitting down). Percentage of interobserver agreement was calculated by dividing the total number of sessions that both observers reported the same measurement scores by the total number of reliability checks and multiplying by 100. The average percentage of interobserver agreement was 100%.

Experimental Design

A within-subject AB design was implemented in two settings to assess the effectiveness of the behavior therapy procedure. Following baseline measurement of Mike's noncompliance while transitioning during morning arrivals and afternoon departures in the school setting, I implemented the behavioral intervention. Baseline and intervention conditions were also carried out in Mike's home setting. In addition, probe sessions were conducted as described in the following sections.

Baseline. During baseline in the school setting, Mike's classroom staff members interacted with him in their regular fashion while taking him to and from the school bus. While walking appropriately at these times, he was usually ignored. Only minimal social interaction was provided and edibles were not given. Whenever Mike did sit down while transitioning to and from his school bus, staff members frequently prompted him, verbally and physically, to get on his feet and walk. Mike usually resisted any physical guidance and became aggressive when physically moved by others. Similar baseline conditions existed in the home setting when

the client's mother escorted him to and from his school bus. She also administered frequent verbal and physical prompts whenever he sat down and refused to get up. Aggression was also often evoked in this setting if she physically attempted to get him off the ground.

Treatment. The treatment procedure at school involved providing positive reinforcement (praise and food rewards) whenever the client walked a specified distance while in route to or from his school bus. In the initial phases of the treatment program, Mike was given frequent praise and food reinforcement whenever he walked approximately 3 m without sitting down. His classroom teacher or aide walked beside him during these times of transition and held the food rewards so that they were always visible to Mike while he was walking. The physical distance that he was required to walk without sitting down to earn a food reward was gradually increased in the later phases of the treatment program.

If Mike did sit down inappropriately, he was placed in a 5-minute nonexclusionary time-out. During this time period, all teacher-dispensed positive reinforcement was stopped without removing Mike to a specified time-out area. This was accomplished by the staff member removing the clear plastic bag containing the food rewards from Mike's sight and walking away. Mike was permitted to remain at the location where he initially sat down during the 5-minute time-out period, but all teacher-dispensed positive reinforcement (eye contact, praise, and food rewards) was discontinued. At the completion of the time-out period, the staff member returned and verbally and physically prompted him to get on his feet and walk. If he refused to get up, the staff member again walked away, which signaled another 5-minute nonexclusionary time-out period. This procedure continued until he did comply or until he was physically carried by the staff member if scheduling problems arose. After the treatment program had been in effect for approximately 6 months, the time-out procedure was altered slightly. Staff members at this point began placing Mike on a chair at the spot where he sat on the ground and then walking away from him during the 5-minute time-out period. This revision was made to increase the likelihood of Mike getting on his feet and walking independently before any verbal or physical prompts were provided at the end of the time-out period. A similar procedure was carried out at home by the client's mother

at those times when she escorted him to and from his school bus.

Probe sessions. Five probe sessions were conducted following 20 weeks of treatment in the school setting. In these probe sessions, the total number of times that Mike sat down was recorded during transitional periods in which the behavioral intervention was not in effect. Probe sessions were conducted following 20 weeks of treatment because at this time the frequency of sitting down when Mike was in route to and from his school bus was at a zero level. This procedure permitted a direct comparison with the frequency of Mike's sitting down during transitional periods at other times of the school day when the treatment program was not implemented. Probe sessions were not conducted in the home setting due to limitations in the mother's capacity to carry out additional daily recording sessions.

Follow-Up. Fourteen months following data collection in the treatment phase of the study, Mike's performance in both his school setting and his home setting was re-examined.

Results

Target Behavior in the School Setting

Figure 1 illustrates the number of times that Mike sat inappropriately on the ground or floor in the school setting while transitioning between the school bus and his classroom during 5-day periods. Before the treatment program began in this setting, Mike sat down on the ground or in the hallway nine times while transitioning. Inspection of the daily frequency of sitting down during this baseline period revealed 2, 2, 2, 1, and 2 occurrences, respectively, which did not indicate a descending trend.

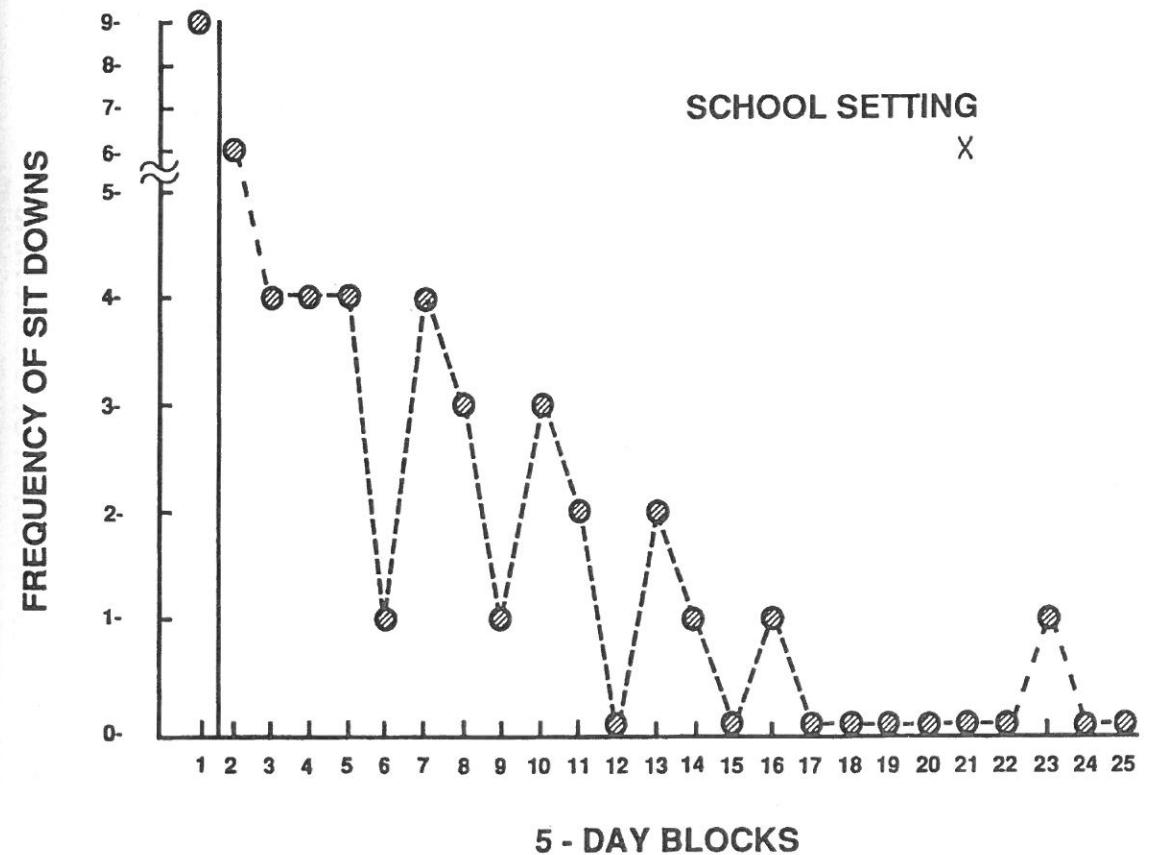


Figure 1. The total number of times that the client sat down inappropriately in the school setting while transitioning between his school bus and the classroom during 5-day periods. X = frequency of sit downs during a 5-day period in transitional times where the behavioral intervention was not employed.

During most of the baseline period, Mike had to be physically carried by staff members. Figure 2 shows that physical hoisting by staff was reported on 4 different days during the 5-day baseline period.

After positive reinforcement and nonexclusionary time-out were employed in the school setting, the number of times that Mike sat down during morning arrivals and afternoon departures decreased and eventually reached zero levels (see Figure 1). With one exception, the client walked appropriately with no instances of inappropriate sitting in the final stages of the behavioral program. In addition, Figure 2 reveals that it was not necessary for staff members to physically carry Mike at any point during these transition times for the majority of the treatment sessions. Because Mike often became severely aggressive when physically carried by others, this meant the behavioral program had prevented escalation to aggression during these times as well.

Mike's frequency of sitting down was also recorded in five probe sessions during transitional periods where the behavioral intervention was not employed, and seven instances

were recorded (Figure 1). This contrasted with zero instances of sitting down inappropriately in the same week during transition times in which the behavioral program was utilized.

Target Behavior in the Home Setting

Figure 3 illustrates Mike's frequency of sitting down in the home setting while he was escorted by his mother to and from the school bus. During baseline, his frequency of inappropriate sitting at home totaled seven occurrences in a 10-day period. In the first 5-day period of baseline, his daily frequency of inappropriate sitting equaled 0, 1, 0, 2, and 1 occurrences, respectively. The second 5-day period of baseline in the home setting revealed 0, 0, 1, 1, and 1 occurrences per day, respectively. A decreasing trend in inappropriate sitting was not evident during either 5-day baseline period. When positive reinforcement and nonexclusionary time-out were employed in the home setting, Mike's frequency of sitting down decreased. After the procedure was carried out by the client's mother, his inappropriate sitting was eventually eliminated. In the final 7 weeks of treatment, no instances of inappropriate sitting occurred dur-

ing these transition times in Mike's home environment.

Follow-Up Findings

Fourteen months following formal data collection, Mike's frequency of inappropriate sitting while transitioning to and from his school bus was re-assessed for a 5-day period. In his school setting, no instances of inappropriate sitting were recorded during this follow-up period.

In Mike's home setting, his frequency of sitting down equaled one occurrence. Sitting down and refusing to walk at these transition times remained at or near zero levels in both settings after formal treatment was terminated.

Discussion

The results of this study illustrate the effectiveness of a behavioral intervention in assisting a client with severe mental retardation who

resided in the community. Chronic noncompliance, involving sitting down and refusing to walk, was successfully eliminated in the client's school and home environments during times of transition by employing a procedure involving positive reinforcement and nonexclusionary time-out. Because his noncompliance could escalate to severe aggression if others attempted to carry him, this unrestrictive behavior management program, which did not involve any aversive stimuli, was important in permitting Mike to remain in his community school. The effect of the behavioral program in reducing inappropriate sitting during transition times was replicated when it was introduced in Mike's home environment. Follow-up measurements showed that the client's behavioral gains were maintained in both settings after formal treatment had been completed, as indicated by zero and near-zero levels of inappropriate sitting 14 months following treatment.

An easy to administer but yet ethically acceptable procedure to both community school personnel and parents significantly improved com-

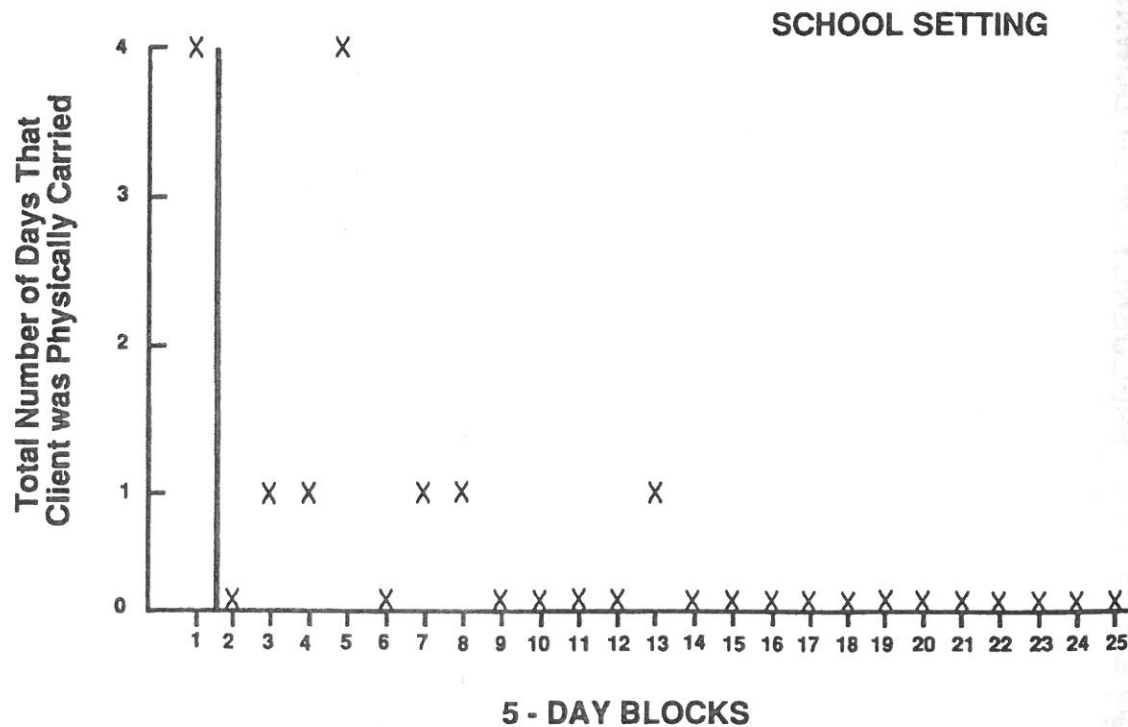


Figure 2. The total number of days in 5-day periods that the client was physically carried between the classroom and his school bus during either morning arrivals or afternoon departures.

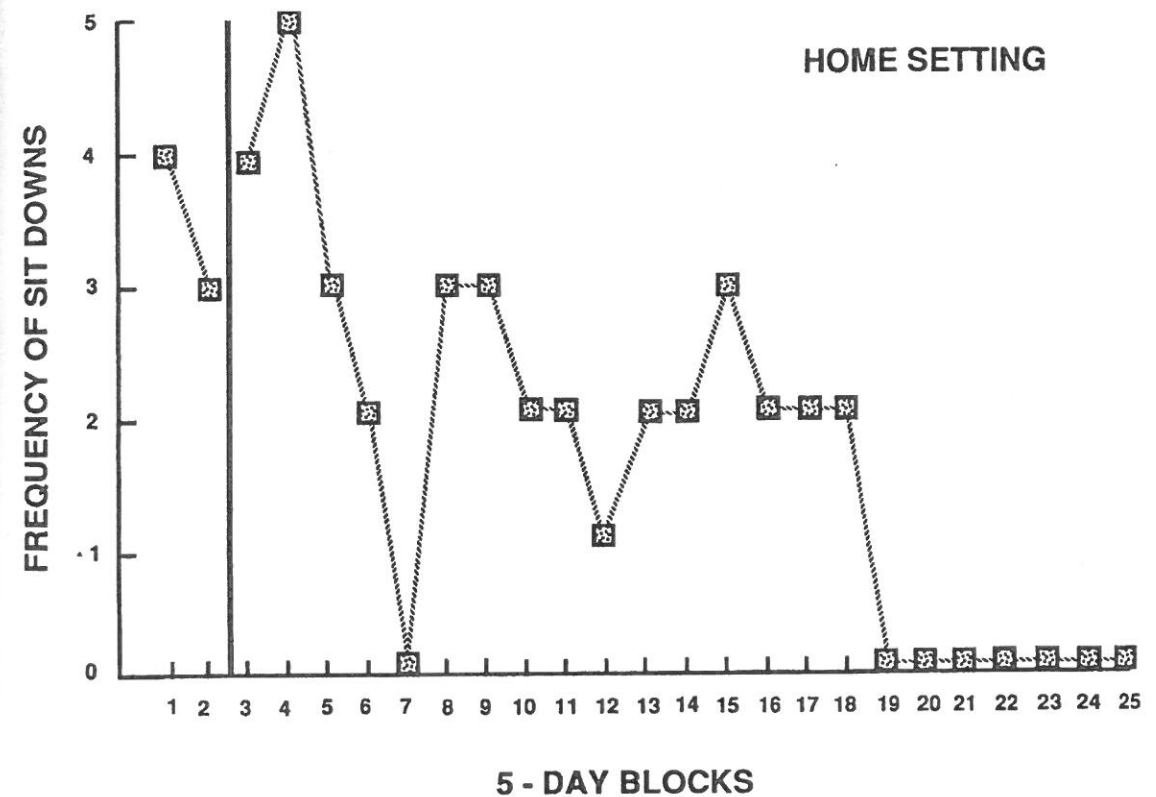


Figure 3. The total number of times that the client sat down inappropriately in the home setting while transitioning between his school bus and his house during 5-day periods.

pliance for a potentially dangerous young adult. Traditional forms of time-out were impossible because attempts to place Mike in a designated time-out area following noncompliance could produce extremely aggressive outbursts. The results of the present study suggest that nonexclusionary time-out is a viable alternative for reducing negative behaviors in such potentially assaultive individuals when positive reinforcement for appropriate behavior is also provided. This contributes to a growing body of literature demonstrating that nonrestrictive procedures involving positive reinforcement can substantially reduce maladaptive behaviors in clients with developmental disabilities and provide treatment alternatives to punishment (e.g., Carr & Durand, 1985; Day, Rea, Schussler, Larsen, & Johnson, 1988; La Vigna & Donnellan, 1986; Pace, Iwata, Edwards, & McCosh, 1986; G. Walker, 1989). The documentation of effective behavioral interventions that do not include the presentation of aversive stimuli is especially critical due to recent controversy concerning the use of aversive procedures in treating individuals with developmental disabilities (Bernstein, 1989; Griffith & Spreat, 1989). Increasing federal and state regulations are currently pending that could limit and potentially prevent the use of any aversive procedures for this population (e.g., Massachusetts Senate Bill 607 entitled "An Act to Protect Disabled Persons"). In addition, in the future Medicaid funds for individuals with disabilities may be restricted to only nonaversive behavioral interventions (Bernstein, 1989). Because clients also have the right to effective treatment (Van Houten et al., 1988), the results of the present study suggest that positive reinforcement interventions employing nonexclusionary time-out may help to satisfy the difficult requirements of being both socially acceptable but yet scientifically validated.

In addition, the intervention procedure of this study was successful in eliminating noncompliance when carried out during transitional periods in both the client's school and home environments. Although misbehaviors in individuals with developmental disabilities are often evoked whenever they are transitioning between settings or between activities, most published reports on time-out procedures have been implemented only during nontransitional times in classroom settings (e.g., Harris & Wolchik, 1979; Mace, Page, Ivancic, & O'Brien, 1986; Mathews, Friman, Barone, Ross, & Christophersen, 1987; Parrish et al., 1986; Rob-

erts, 1988; Walle et al., 1984) or home settings (e.g., Rolider & Van Houten, 1985; Wahler & Fox, 1980). Developing behavioral interventions that can be easily employed during periods of transition is an area that deserves much investigation and research. The findings of this study indicate that nonexclusionary time-out could be utilized for reducing misbehaviors at these times.

Another significance of these findings is that they reveal that even relatively brief periods of behavioral consultation provided on a regular basis can effectively treat chronic and potentially dangerous behavior problems in community settings. Weekly consultation of approximately one hour in length was provided to both Mike's classroom teacher and parents. Not only was noncompliance reduced in the client's classroom and home settings, but the reduction of this misbehavior permitted the eventual placement of this young man with severe mental retardation in a community residential program. Prior to implementation of the behavioral intervention, Mike had been consistently rejected for consideration for numerous community residences due to his extreme noncompliance. This was observed during initial interviews by Mike's refusal to walk and severe aggressive outbursts that occurred whenever his parents or staff members attempted to move him. Following Mike's improvement after behavioral intervention, he was successfully placed in a community residence.

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