

# A Descriptive Analysis of Disruptive Behavior During Pre- and Post-Unsupervised Self-Management by Students with Serious Emotional Disturbance: A Within-Study Replication

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Presently, considerable controversy appears to exist within the school psychology and applied behavior analysis literature as to the general effectiveness of self-management and social skills. At best, research in this area remains inconclusive (Hanson & Jackson, 1991; Wilson, 1984). Two points stand out with regard to this problem: First, presumably, most social skills curricula have not addressed suitably the problem of transfer of social and academic skills across campus settings (D. J. Smith, Nelson, Young, & West, 1992), and second, insufficient analysis has been done of conditions initiating and maintaining target behaviors performed by students with serious emotional disturbance (SED) as they perform across diverse school settings (see Chandler, Lubeck, & Fowler, 1992; Hughes, Ruhl, & Misra, 1989; Skiba & Grizzle, 1991).

Although researchers have long suggested prosocial skills training as a prerequisite for mainstreaming students with SED (e.g., Argyle, Trower, & Bryant, 1974), an ancillary set of skills may be required in order to support the newly acquired prosocial skills—particularly when such skills must be employed in the absence of supervision by socializing agents. These ancillary skills, referred to as “self-management,” “self-

A descriptive analysis of disruptive behavior was generated from filmed observations prior to and following training in self-management skills. Two junior high students with serious emotional disturbance (SED) were covertly videotaped during in-classroom and between-classroom performance in the absence of supervision. Videotapes were analyzed by descriptive analysis of conditions associated with disruptive/off-task behaviors. Descriptive analysis revealed that maladaptive behaviors were self-initiated in unsupervised settings. It also is apparent from this analysis that maladaptive behaviors were correlated with provocation by peers and with continuing disruptive interaction between students once an off-task/disruptive episode had begun. Treatment procedures were applied by way of a multiple baseline across settings design and included instruction, modeling, rehearsal, and rehearsal in the apparent absence of supervision. Self-management training features included self-assessment, self-recording, and self-reinforcement for correct approximations of on-task and socially appropriate behavior. Outcomes suggest that the descriptive analysis was predictive of the conditions correlated with problem behaviors and that on-task/socially appropriate behaviors were transferred and sustained while operating under the influence of self-management in the absence of supervision.

control,” or “self-regulation” may be engaged when the behavior to be controlled is actually regulated by the identified student.

Investigation in this domain has generated a self-management technology (Baer, 1984; Fowler, 1984; Glynn & Thomas, 1974; O’Leary & Dubey, 1979; Rosenbaum & Drabman, 1979; Young et al., 1987), which has been described within models of direct-acting contingencies (e.g., Neef, Mace, & Shade, 1993) and rule-governed behavior (e.g., Kern-Dunlap et al., 1992). Ironically, diverging models based on different principles often have employed similar procedures in order to enhance the

acquisition of social skills and self-control (Ninness, Glenn, & Ellis, 1993).

Self-recording has improved student on-task behavior (Glynn, Thomas, & Shee, 1973), enhanced student academic efficiency (Dunlap & Dunlap, 1989; Lam, Cole, Shapiro, & Bambara, 1994; Knapczyk & Livingston, 1973; McLaughlin & Truhlicka, 1983), minimized “talking-out” behavior (Brodin, Hall, & Mitts, 1971), and established advancements in academic productivity and precision for students with learning disabilities (LD) in a general education classroom (Maag, Reid, & DiGangi, 1993). Self-assessment has facilitated generalization of students’ on-

task behavior across supervised settings (Rhode, Morgan, & Young, 1983) and resulted in preschoolers demonstrating an ability to obtain contingent teacher praise (Connell, Carta, & Baer, 1993). Self-managing children with autism have exhibited decreased percentages of disruptive behavior in multiple community locations (Koegel, Koegel, Hurley, & Frea, 1992). Stahmer and Schreibman (1992) demonstrated improved play behavior by children with autism by fading the presence of the experimenter during self-management training.

Findings associated with successful self-management interventions in multiple settings by students with SED have been reported less frequently. Most notably, adolescents with SED have not demonstrated continuity of self-management skills across settings, particularly when those settings did not include the presence of socializing agents or other monitoring mechanisms. For example, D. J. Smith, Young, West, Morgan, and Rhode (1988) found that junior high adolescents with behavioral disorders (BD) in resource classrooms did not transfer self-monitoring and self-evaluation skills to general education classrooms. Although D. J. Smith et al. (1992) described the successful generalization of self-management skills by adolescent students with LD and BD from their training/resource setting to general education classrooms, transfer was accomplished by recruiting general education peers to perform as "co-assessors." Kern-Dunlap et al. (1992) found decreased levels of inappropriate classroom behavior among children with BD, but this was limited to self-managing behaviors that were recorded conspicuously, via camcorder, from the corner of the classroom.

A few researchers have confirmed that, under certain conditions, junior high school students with BD could self-manage improved social skills and on-task behavior and aggression replacement skills (Ninness, Ellis, Miller, Baker, & Rutherford, 1995) in and between classes and independently of conspicuous monitoring equipment and supervision by teachers or peers (cf. Hough-

ton, 1991; Ninness, Fuerst, Rutherford, & Glenn, 1991). These outcomes were achieved by incorporating into the self-management procedures incremental role-playing procedures that simulated the gradual *fading* of supervision by teachers or other socializing agents. However, an unanswered question in these studies entails the extent that self-management procedures have correctly addressed the most relevant problematic conditions interacting with the students' aberrant behavior.

### Functional and Descriptive Analysis

It has been suggested that functional and/or descriptive analyses of maladaptive behaviors might facilitate a wide range of intervention procedures (Mace & Lalli, 1991; Mace, Webb, Sharkey, Mattson, & Rosen, 1988). This includes problem behaviors exhibited by children with BD or SED (Dunlap, et al., 1993; Kern, Childs, Dunlap, Clarke, & Falk, 1994).

Functional analysis refers to the experimental procedure of generating controlled analogues under conditions that simulate those occurring naturally (Iwata, Dorsey, Slifer, Bauman, & Richman, 1982). This technique may entail experimentally inserting and extracting antecedent stimuli associated with a problem behavior (e.g., Carr & Durand, 1985), providing differing consequences contingent on maladaptive behaviors (e.g., Iwata et al., 1982), and exploring alternate theories regarding conditions associated with maladaptive behavior (Rortvedt & Miltenberger, 1994; cf. Taylor & Romanczyk, 1994). However, it has been argued that traditional functional analysis strategies are advantageous only insofar as they are representative of contingencies existing in the subject's natural environment (Mace & Lalli, 1991). Otherwise, outcomes derived from a rigorous functional analysis may be operative only within the confines of the simulated conditions.

Descriptive analysis has been advanced as an alternative means of capturing similar data under less intrusive

and rigorous circumstances. Descriptive analysis refers to the acquisition of relationships between behavior and environmental events in the milieu in which the behavior emerges. In a descriptive analysis, observed correlations between target behaviors and specific environmental antecedents or data gleaned by this system have been characterized as less rigorously experimental than functional analyses (Lerman & Iwata, 1993). Furthermore, it has been noted that descriptive analyses may require follow-up procedures to further delineate functional relationships (e.g., Lalli, Browder, Mace, & Brown, 1993; Mace, Lalli, & Pinter-Lalli, 1991). However, developing rigorous experimental functional analyses within the confines of the public school system is complex (Gunter, Jack, Shores, & Carrell, 1993) and may yield findings comparable to those from a descriptive analysis (Sasso et al., 1992). If it can be demonstrated that descriptive analyses are relatively serviceable in isolating the conditions associated with maladaptive behaviors of students with SED, intervention procedures might be facilitated and expedited. The primary purpose of this study was to conduct a retrospective descriptive analysis of off-task/disruptive behavior and to appraise the extent to which this type of analysis might facilitate self-management procedures. A second purpose of this study was to further analyze the effects of self-management training procedures as performed by students with SED in the absence of supervision.

## METHOD

### Participants and Setting

Two boys, ages 13 and 14 years, served as participants. Both students were of average intelligence and initially spent their school day in a self-contained special education classroom serving eight junior high school students identified as having SED. One teacher and an aide conducted the special education class. Support also was provided by a school psychologist and two graduate students.

Participants were selected retrospectively from filmed observations of a previous study (Ninness et al., 1991). These two students had attended fewer days of class during the baseline period and had not been targeted as subjects in the original study because their behavior was not represented adequately on filmed observations. As was true for other members of the self-contained class, these students had documented, exceptional records of disruptive, off-task, and socially inappropriate behaviors on and around the junior high campus. Both students had been identified as SED using the guidelines provided by the Texas State Board of Education and guidelines for the implementation of the Individuals with Disabilities Education Act of 1990 (IDEA; U.S. Department of Education, 1991). Although these students had been identified as SED, they had not been classified with specific DSM-III-R (American Psychiatric Association, 1987) or DSM-IV (American Psychiatric Association, 1994) diagnoses, nor did they receive any form of neuroleptic medication during the course of the study. The selection criteria for these two individuals, as well as all members of the self-contained class, were based on their exceptionally high rates of office referrals regarding aggression, disruption, belligerence, truancy, tardiness, and destructive and socially inappropriate behaviors.

As described in Ninness et al. (1991), during 20 minutes of the third period of the school day (10 a.m.), and an average of 2.7 minutes between classes at lunch time (12:25 p.m.), students in the class were videotaped by a camera hidden behind a two-way mirror. However, the two target students under review were not the focus of the original study. Although their behavior was captured within most of the filmed observations, these two students were not within the frame and focus of the filmed observations throughout the entire 20-minute in-class observation. During many of the filmed observations, these two boys were obstructed from view of the camera and were only visible for approximately 60% to 70% of

each 20-minute observation session. Accordingly, in order to provide a consistent retrospective observation period for these students in the classroom setting, the total time requirement for each session was reduced from 20 minutes to 10 minutes (the first 60 unobstructed 10-second intervals per observation session). During the between-class observations, these two participants were in focus throughout the duration of the entire 2.7 minutes of observation in each session.

### Dependent Variable

The dependent variable, off-task/disruptive behavior, is consistent with that used in the original study by Ninness et al., 1991. Off-task behavior encompassed the following: being out-of-seat, touching another student, playing with school supplies, talking to another student or aloud to one's self, and "dawdling" (staring off into space for more than 5 seconds). Disruptive behavior included running, fighting, fondling, spitting, throwing objects, jumping, or inappropriate language (cursing, yelling, or obscene gesturing). Off-task/disruptive behaviors were scored in a single category because the types of behavior were functionally similar, considered maladaptive, and often intensified into more significant behavioral transgressions. Consistent with the original study, 10-second interval recording was used to measure off-task/disruptive behavior. On-task/socially appropriate behavior was defined to meet criteria during the absence of the teacher and included performing an academic task while sitting quietly or walking directly from one campus site to another (between classes) without creating or responding to a social disruption or disturbance. The dependent variable, percentage of intervals in which off-task/disruptive behavior occurred, was calculated by dividing the number of 10-second intervals during which target behavior occurred by the total number of 10-second intervals in the 10-minute observation period for each observation session per day and multiplying the number obtained by 100%. In addition, each interval in

which the target behavior occurred was coded in terms of having been self-initiated by the target student, provoked by another student, or related to the continuing interaction between or among students once a disruptive or off-task episode had been initiated.

The percentage of intervals in which provoked, self-initiated, or continuing off-task/disruptive behavior occurred was calculated in the same manner. A target behavior was scored as *self-initiated* if the student was the first to perform any of the previously listed behaviors. A target behavior was scored as *provoked* if another student performed any disruptive or aggressive gesture that approximated contact or made contact with the target student. In the classroom context, where audio recording was possible, provocation was scored when a peer verbally taunted or distracted the target student and such provocation resulted in off-task or disruptive behavior on the part of the target student. In the between-class context, only physical distractions were scored as provocative. During intervals in which some form of disruptive exchange was already in progress between students, both students were scored as *continuing* off-task/disruptive behavior.

### Interobserver Reliability

Prior to scoring the videotaped behavior during the experimental conditions, observers practiced scoring a prebaseline video to a 95% criterion. Targeted participants were scored by two observers throughout all conditions. Percentage of agreement for occurrence and nonoccurrence was computed for each of the participants by dividing the number of agreements by the total number of observed intervals and multiplying by 100. Overall reliability coefficients ranged from 87% to 100%. Occurrence and nonoccurrence reliabilities were at or above 84%. Interobserver agreements referencing self-initiated, provoked, or continuing off-task/disruptive episodes also were calculated across 100% of the filmed sessions but were less stable across observers. Overall reliability coefficients extended from 82% to 97%. Occurrence and nonoccurrence reliabilities for the



descriptive analyses were at or above 83%.

## Design and Training

The experiment used a multiple baseline across settings design. Subsequent to obtaining baseline recordings in the classroom setting, social skills and self-management procedures were initiated in that setting exclusively. This entailed training to self-manage in the absence of supervision, training to self-manage under provocation, and two probe conditions. A condensed treatment (instruct to self-manage) was provided in the between-class setting 42 days after terminating baseline in the classroom setting.

**Baseline.** All members of the self-contained class were videotaped from behind a two-way mirror during 4 consecutive days at the beginning of the fall semester. During baseline observations in the classroom, no management contingencies were in effect. The teacher simply informed all students to “self-manage” and to perform an independent reading exercise while he and the aide temporarily vacated the classroom. No teacher or other authority figure entered the classroom during any of the 20-minute baseline sessions.

Baseline in the second between-class setting was obtained by observations at a minimum of 2.7 minutes at lunch time (12:25 p.m.). Filming in the between-class setting was conducted from behind a shaded window of a portable building adjacent to the sidewalk on which these students walked unattended between classes. These between-class baseline recordings were conducted twice during the 4 days of the in-class baseline and were discontinued during the 5 weeks of in-class training. Between-class observations recommenced when the experimental conditions were initiated in the classroom setting and were maintained for 6 more consecutive days. Throughout the duration of the experiment, students did not exhibit any awareness of the covert filming procedures.

At the time this study was originally conducted, no formal quantitative de-

scriptive analysis of baseline behaviors was performed. Problem behaviors were not specifically calculated across antecedent or consequent conditions. Nevertheless, baseline observations quickly revealed conspicuous examples of the conditions associated with maladaptive behaviors emerging in the absence of close supervision by authority figures.

## **Social Skills and Self-Management Training.**

As illustrated in Table 1,

formal instruction in new social skills and self-management procedures was conducted for 1 hour each day; however, these strategies were continuously instructed, modeled, and rehearsed throughout all periods of the school day as a form of “on-the-job” training. Social skills instruction was derived from analyzing excessive and deficient behaviors demonstrated during baseline.

Instructed social skills were limited to basic classroom protocol and elemen-

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TABLE 1  
Contingencies, Social Skills, and Self-Managed Behaviors During Training and Through Treatment

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### **Instructed, modeled, and rehearsed social skills**

1. On-task behaviors. Weeks 1 and 2
2. Ignoring distractions by others. Week 4 and on
3. Persevering with difficult academics. Week 5 and on

### **Behaviors to be self-managed**

1. Modeling and rehearsal of self-instruction. Weeks 1 to 4
2. Self-assessing on Likert scale. Week 1 and on
3. Matching self-assessment with teacher assessment. Week 1 and on

### **Classroom and between-classroom contingencies**

1. Point system was provided for advancement on social pyramid. Points derived from teacher assessments matching self-assessment on Likert scale.
2. Students self-assessed during the school day according to leveling system.
  - Red:** Assessed three times per class period at 20-minute intervals. 100 points available. Criterion for next level reached after 4 weeks of 90% attainment.
  - Orange:** Assessed three times per class at 30-minute intervals. 70 points available. Criterion for next level reached after 4 weeks of 95% attainment.
  - Green:** Assessed once per class at 60-minute intervals. 40 points available. Criterion for next level reached after 4 weeks of 97% attainment.
  - Blue:** Assessed once per class at 60-minute intervals, 40 points available.

### **Leveling system providing deprivation and reinforcement**

1. **Red:** Students spent break working at desk; sat in assigned seat during lunch; walked in quiet/supervised line to restroom, lunch, etc.; had no access to special privileges available at upper levels.
2. **Orange:** Students were permitted to walk alone to restroom during breaks, to choose seating location for lunch, to go on field trips.
3. **Green:** Students walked alone during passing periods, were issued a locker, were permitted to use computer games, were placed in general education or resource classroom.
4. **Blue:** Students were provided additional general education or resource classes.

### **Sequence of training procedures**

1. Instruction, modeling, role playing. Weeks 1 to 5
2. Unsupervised rehearsal. Weeks 1 to 5
3. Red flags. Weeks 4 and 5

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Adapted from Ninness et al., 1991.

tal social interactions between and among peers and faculty. Social competencies addressed such routine skills as proper hand raising for questions and polite modes of addressing teachers and peers. Training of on-task skills was restricted to appropriate seating posture, assignment planning, academic engagement, and avoidance of distractions and provocations by others while working. These fundamental skills were didactically instructed, modeled, and rehearsed to mastery. More tangential skills (e.g., how to meet new people, relaxation training, or the ability to accept compliments) were not included as part of the program.

Following explanations and demonstrations of these basic classroom behaviors, students role played under simulated conditions, which included performing social and on-task behaviors under both ideal and distracting conditions. For example, during the rehearsal of maintaining academic engagement while being distracted by peers, students rehearsed overt self-instructions such as, "I'm not going to let him or her bother me. I'm going to keep doing my work." During these role-playing scenarios, students were coached in the use of a gesture indicating their preoccupation with a task (palm open, small wave), while avoiding eye contact with those who distracted them. Students practiced fading self-instruction from overt statements to subvocalizations. Circumstances that were academically taxing but devoid of social provocation were also addressed, with the objective of teaching students to persist in trying to solve perplexing problems or read challenging materials without teacher assistance. To address this fairly common classroom circumstance, students rehearsed working on academic materials that were conspicuously above their current level of functioning.

A daily self-assessment point sheet was kept at each student's desk. As originally described by Rhode et al. (1983), students practiced assessing their own on-task/socially appropriate behavior during each social skills session and at individually prescribed intervals throughout the entire academic day.

Students were provided more opportunities to self-assess during the initial stages of their training. Self-assessment was facilitated by use of a Likert scale ranging from 1 (*poor*) to 4 (*perfect on-task/socially appropriate*); lower scores represented fewer acceptable achievements. Students first scored themselves and subsequently were scored by their teacher or teacher's aide. A bonus point was awarded for any self-assessment score that was within 1 point of the teacher's or aide's.

Students were initiated to the self-management program at the floor of the social reinforcement pyramid (red level; Ninness et al., 1993) and self-assessed every 20 minutes throughout the school day while they remained at that level. Points for demonstrating enhanced social skills and self-management earned students advancement on the reinforcement pyramid, where they gained access to tangible reinforcers and social privileges and where they were required to self-assess fewer times per hour.

**Unsupervised Rehearsal.** Subsequent to daily half-hour instruction, modeling, and rehearsal of social skills under the tutelage of staff and faculty, students took part in unsupervised self-management of social skills. Students were directed to self-manage newly rehearsed social skills (e.g., staying on-task while being distracted by confederates or continuing to work on challenging material) while the teacher and aide withdrew from the classroom. The students did not know that their classroom behavior was continually monitored from behind a two-way mirror.

Initially, the unsupervised training conditions consisted of extremely brief intervals (between 2 and 3 minutes) during which students practiced self-management in the apparent absence of supervision (cf. Stahmer & Schreibman, 1992). This unsupervised self-management in the classroom initially was executed in an abbreviated format in order to increase the likelihood of students successfully sustaining on-task and socially appropriate behaviors for a

fixed period of time. As students improved their performance in the absence of supervision, the social skills/self-management intervals gradually were expanded. Furthermore, as students gained proficiency at self-management, the practice sessions were conducted at differing and increasingly unpredictable times throughout the day.

After all unsupervised rehearsals, when the teacher returned, students assessed themselves regarding their on-task and socially appropriate behaviors. Ostensibly, no authority figure had been on location during the unsupervised rehearsal; therefore, matching teacher assessments with students' self-assessments was not possible. In order to preserve a uniform quantity of accessible points per each self-assessment interval on such occasions, one non-contingent point was affixed to the students' self-recording during all unsupervised rehearsals.

**Red Flags.** As students demonstrated increasing competence in the self-management of social skills in the absence of supervision, they were exposed to increasingly random opportunities to practice these new skills at unpredictable times throughout the school day. These unforeseeable practice trials, or "red flags" (McGinnis, 1984), were analogous to disturbing conditions that might occasionally be encountered in the general education setting and that required use of newly mastered social skills. Red flag trials were always performed within the proximity of the teacher or another socializing agent. It is important to emphasize that students never were exposed to a red flag trial until they had mastered the required social skill under supervised rehearsal conditions.

Typical red flag trials entailed students being given excessively demanding in-class assignments, being reprimanded unfairly by the teacher, or being agitated by peers in the teacher's proximity. All of these unannounced training trials exemplify various forms of indiscriminable contingencies (Stokes & Baer, 1977) and were deemed to be

consistent with problematic but inevitable circumstances arising in special and general education settings. Within 5 minutes of a red flag challenge, the students were notified that they had been tested and asked to score themselves regarding their performance; if the students' assessments matched those of the teacher, bonus points were given.

**Friday Observations.** On each Friday of the 5-week training period, the teacher and aide withdrew from the classroom, informing all students to use the self-management/social skills procedures they had rehearsed thus far. Data were recorded from behind the two-way mirror in the same manner as the original in-class baseline condition.

### Post-Training Experimental Conditions

To assess the students' performance in the absence of socializing agents, a succession of experimental conditions was introduced and formal daily training in social skills and self-management was terminated. Although formal training was not conducted during these sessions, points that students self-assessed and self-recorded could be exchanged for advancement on the social reinforcement pyramid.

**Self-Management Without Supervision.** A series of covert observations during training suggested that students were capable of self-assessing "honestly" in the apparent absence of supervision (5 weeks of training); subsequently, students were given independent classroom assignments and told to employ their self-management skills while the teacher and aide withdrew from the classroom for 20 minutes each day. Students assessed their on-task/socially appropriate performance when the teacher and aide returned. Because no veracity check was feasible under these conditions, a bonus point was given noncontingently to each student. This arrangement was maintained in all succeeding experimen-

tal conditions. It is important to note, however, that more challenging experimental conditions were not attempted until covert monitoring provided evidence that students were self-assessing correctly in the apparent absence of supervision.

#### **Self-Management With Distraction.**

As in the previous condition, students were left alone in the classroom for 20 minutes and instructed to self-assess upon the teacher's return. During this phase, confederate students provided diversified verbal and physical distractions as others in the class attempted to complete their assignments. This followed the same format that had been rehearsed for 5 weeks during social skills and self-management training in the presence of the teacher and psychologist. Again, all student behaviors were monitored and recorded from behind a two-way mirror adjoining a janitors' closet. Upon returning to the classroom, the teacher had all students conduct a self-assessment.

**Probe Conditions.** As the students exhibited increasing proficiency in the self-management of social skills in the apparent absence of supervision, the salient pattern associated with the teacher's and aide's departure from the classroom was faded. Four probes were introduced in which the teacher and aide simply withdrew from the classroom and provided no explicit instructions for students to self-manage. On these occasions, the teacher was called out of the classroom by way of the public address system or was summoned directly from the classroom by a student helper. The teacher and aide remained out of the classroom for 20 to 30 minutes during each one of these probe sessions. During the first 2 days in which these probes were instituted, the students had no prepared assignments to perform in the teacher's absence; however, previous training had entailed instruction, modeling, and rehearsal regarding the self-initiation of academics in the teacher's absence.

During the following 2-day probe sessions, the above condition was replicated with the added stress of having student confederates attempt to distract and annoy all students in the class during the teacher's absence.

#### **Between-Class Self-Management.**

Participants initiated self-management procedures in a second setting. Starting on the 46th day of the investigation, students were instructed to self-assess their conduct during the passing period as they walked along a 70-yard breezeway on the way to and from the cafeteria. Self-recording took place upon the students' return to the self-contained classroom. Incorporating this between-class passing period into the self-management program brought the behavior of walking to the cafeteria unescorted, eating lunch without supervision, and returning to the classroom within the range of potential point acquisitions on the reinforcement system.

Students were *not* provided detailed instruction, modeling, and rehearsal of appropriate conduct between classes. Rather, they simply were told what actions constituted socially appropriate/on-task behaviors within the confines of this second between-class setting and told to self-assess accordingly. Appropriate performance between class was described as walking directly to and from the classroom in a forward position. Further, walking along the sidewalk appropriately required refraining from *self-initiated* disruptions (e.g., running, touching other students in a rough or lewd way, or making obscene gestures) and from *responding to the provocation/s of other students* to engage in disruption. Normal conversation, handshaking, or "appropriate gestures" were all characterized as within the scope of on-task/socially appropriate behaviors. Students were covertly videotaped as they walked along the breezeway returning from the cafeteria. This between-class condition was designed to assess the extent to which self-management procedures would transfer to a new setting with only abbreviated instructions to self-manage.



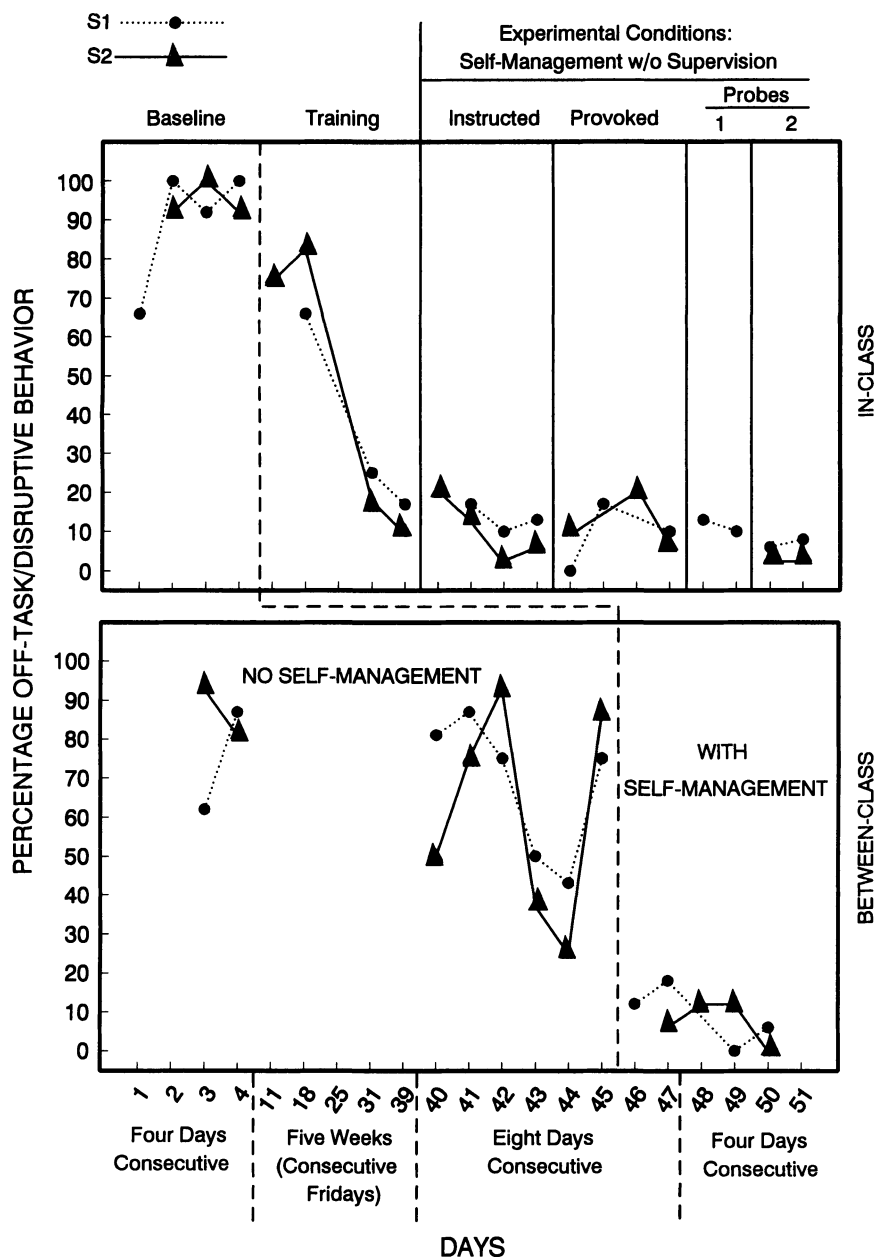


FIGURE 1. Percentage of intervals containing off-task/disruptive behavior across conditions of the study for Students 1 and 2.

## RESULTS

No consistent differences in performances appeared during baseline observations (see Figure 1). Although a slight decline in between-class problem behavior on the part of both participants indicated a temporary improvement (during Days 43 and 44), continued observations suggest that this merely represents uncontrolled variability.

Student 1 demonstrated a sustained percentage of off-task/socially inappropriate behavior during in-class baseline ( $M = 89.5\%$ ). Within the five consecutive Friday observations during training, this student only met observation criteria (10 minutes in focus) on three occasions. Nevertheless, there was a conspicuous drop in problem behavior by Weeks 4 and 5 of training. The subject met observation criteria for all but

one session (Day 46) during the remaining days of the experiment. The ensuing in-class experimental conditions resulted in continued reductions in the target behavior, even though these conditions became increasingly challenging. This student averaged 13.3%, 9%, 11.5%, and 7% target behavior during the instructed, provoked, Probe 1, and Probe 2, conditions, respectively.

During the same days on which this participant was exhibiting improvement in the classroom in the absence of teacher supervision, he continued to manifest problematic behavior as he walked between the cafeteria and the classroom. During the 8 days of between-class baseline in which self-management contingencies were not accessible, this student averaged 70% off-task/socially inappropriate behavior. When self-management contingencies eventually were invoked in this setting, Student 1 demonstrated an immediate and continued reduction in problem behavior. Under the influence of self-management contingencies between-class, this participant demonstrated problem behavior during only 9% of the observed intervals.

The percentage of intervals in which off-task/socially inappropriate behavior was demonstrated by Student 2 also sustained high levels during in-class baseline ( $M = 94.6\%$ ). Within the five consecutive Friday observations performed during training, this student met observation criteria on four occasions and demonstrated a significant reduction in problem behavior by Weeks 4 and 5 of training. He met observation criteria for all but three sessions (Days 45, 48, and 49) during the remaining days of the experiment.

During the in-class experimental conditions, Student 2 displayed continued reductions in the target behavior. This student performed an average of 10% and 11.6% intervals of target behavior during the instructed and provoked conditions, respectively. Student 2 did not meet observation criteria for either of the Probe 1 sessions; however, during the Probe 2 condition, he averaged 6.5% intervals in which problem behavior was exhibited.

As was the case with Student 1, Student 2 continued to manifest problematic behavior as he walked between the classroom and the cafeteria. During the 8 days of between-class baseline in which self-management contingencies were not accessible, this student averaged 67.6% intervals of off-task/socially inappropriate behavior. When self-management contingencies were instated, Student 2 manifested a prompt and stable reduction in the percentage of target behavior ( $M = .5\%$ ). Although an examination of baseline tapes during the original study revealed the primary circumstances in which problem behavior arose, no systematic calculations were conducted at that time.

The present descriptive analysis illustrates the relative inconsistencies in the conditions correlated with high percentages of the target behavior (see Figure 2). At various times during baseline observations, both students self-initiated off-task/disruptive behavior, and at different times they responded inappropriately to the provocations of peers. Further, both were likely to continue the target behavior once an episode was initiated by any party in the immediate context. Examination of in-class baseline films revealed that Student 1 had a significantly higher percentage of self-initiated than provoked intervals of off-task disruptions. Continuing episodes are comparably high during all baseline segments, suggesting that, previous to treatment, this participant had difficulty terminating inappropriate behaviors following off-task/disruptive interaction with peers.

Similarly, all baseline observations of Student 2 show that self-initiated off-task/disruptions occurred more often than inappropriate responses to the provocations by other students. This is most conspicuous during the in-class baseline observations, where his highest percentages of self-initiated target behavior are above that seen during provoked and continuing off-task/disruptive episodes.

In the between-class setting, which constituted a series of relatively brief observation periods (2.7 minutes), peer interactive disruptions between and

among students were likely to be sustained throughout most of the entire observation session. Thus, high levels of the target behavior in this context are represented as continuing episodes. Additionally, both students demonstrated slightly higher levels of self-initiated than provoked target behavior while walking between classes. Following the 5 weeks of social skills and

self-management training, both students demonstrated levels of off-task/disruptive behavior that are too low to suggest any pattern of differentiation.

## DISCUSSION

The results of this study extend the research conducted by Ninness et al. (1991) by identifying the conditions

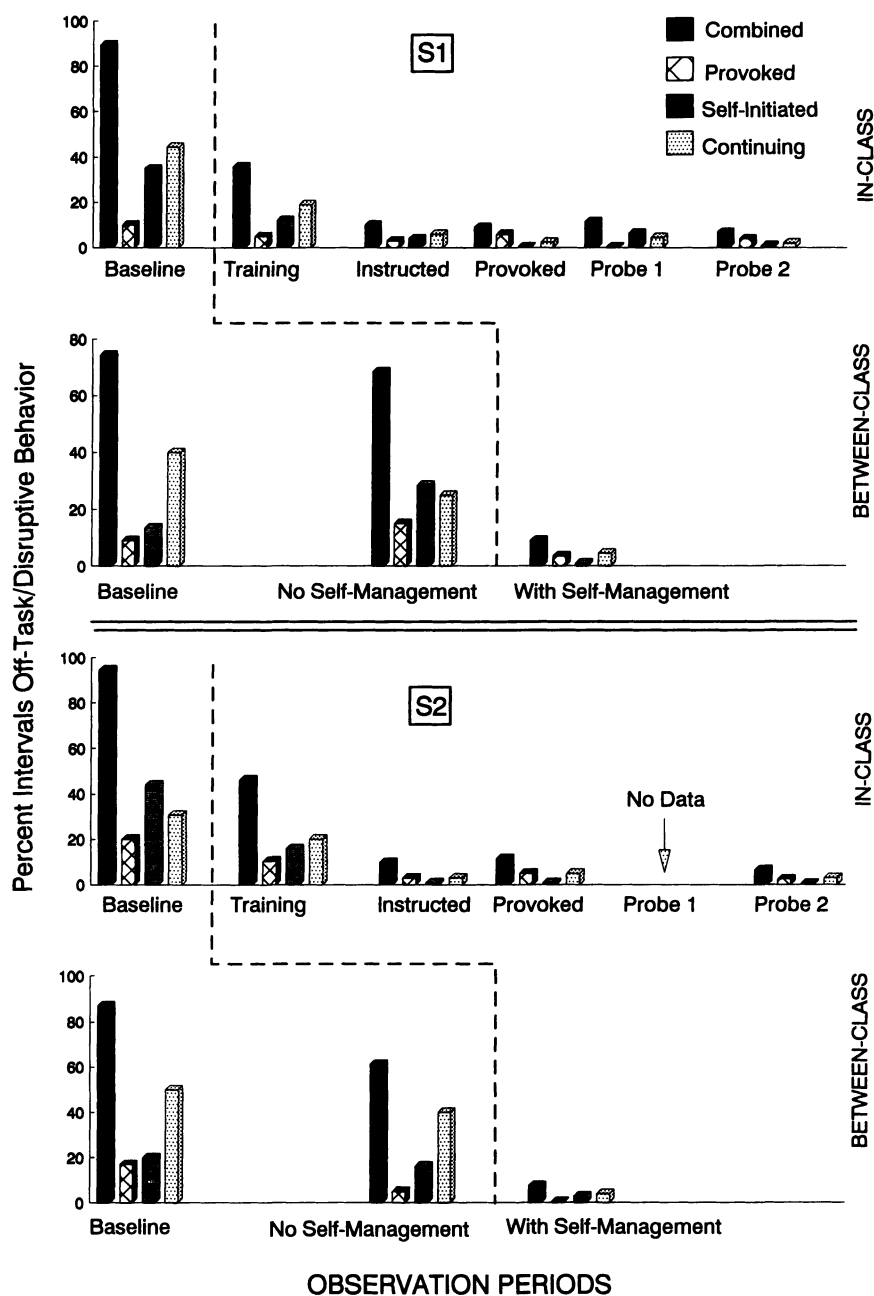


FIGURE 2. Percentage of intervals containing off-task/disruptive behavior under particular conditions for Students 1 and 2.



associated with higher levels of off-task/disruptive behavior. Generally, this analysis suggests that the social skills and self-management curriculum provided during the original study needed to address student problem behaviors correlated with provocation by other students, self-initiation of off-task/disruption, and continuing interaction among peers constituting off-task/disruptive behaviors. Neither participant revealed a pattern of differential responding that would specifically indicate any advantage in isolating any single component of the training curriculum to the exclusion of the others. However, most of the original training conducted during the 5-week period accentuated self-control procedures aimed at increasing the students' tolerance for provocation by peers. Less emphasis was attached to issues associated with self-initiated and continued peer interaction of off-task/disruptive behavior. The present results suggest that we might have expedited the training of these two subjects by identifying self-initiated and continuing peer transaction episodes as having a much higher probability of interacting with the target behavior. This finding is consistent with other recent outcomes found in the descriptive analysis of aggressive behaviors performed by adolescents (Ninness et al., 1995).

Procedurally, this study involves a comprehensive preparation of cumulating treatments, and the outcomes cannot be specifically attributed to any one element. Most notably, the investigation contrasts with the majority of self-management research in that participants were given multiple occasions to employ their self-control skills during in-class and between-class segments of their school day, in the apparent absence of supervision. Further, these participants subsequently acquired reinforcement by retrospectively assessing their proficiency at different times and in different settings.

### Descriptive Analysis

Filming the students and performing a descriptive analysis of the filmed be-

haviors across settings in the apparent absence of direct supervision afforded an opportunity for the researchers to retrospectively assess the conditions correlated with the target behaviors. Although *provoked* and *continuing* off-task and disruptive behaviors were relatively easy to identify in the descriptive analysis, the contextual cues that interact with *self-initiated* behavior were particularly elusive. Indeed, this study seems to suggest that self-initiated off-task/disruptive behaviors may *not* be related consistently to the physical properties of the settings in which these behaviors are occasioned. Particularly among adolescents with BD, self-initiated off-task and disruptive behaviors may be attributed partially to the generation of idiosyncratic and maladaptive rules (Malott, 1989; cf. Catania, Shimoff, & Matthews, 1989). Even though a descriptive analysis is not capable of providing details regarding the specific covert verbal content of a given student's self-initiated problem behavior, such an analysis nevertheless furnishes a vehicle for identifying the probable times and locations for their occurrence. Thus, the descriptive analysis in this study does suggest that subjects might have profited from a more extensive training in self-instruction and self-assessment of behaviors to control self-initiated problem behavior. This interpretation is congenial with a contemporary behavior-analytic description of verbal events relating to rule following (Hayes & Wilson, 1993). Future research should consider comparing treatments directed at identifying direct-acting contingencies and rule-governed contingencies interacting with self-initiated and provoked aberrant behavior.

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## NOTICES

### FIFTY-FIFTH WESTINGHOUSE SCIENCE TALENT SEARCH OPEN FOR ENTRIES

Entry materials are now available for the 55th Westinghouse Science Talent Search. All U.S. high school seniors who are not members of the immediate families of Westinghouse Electric Corporation and its affiliates or subsidiaries, Science Service, Inc., or judges and evaluators of the competition are eligible to participate. To qualify, students must write a report on an independent research project in science, mathematics, or engineering and submit it for judging.

The competition is sponsored by Westinghouse Electric Corporation in partnership with Science Service, a Washington-based nonprofit organization that fosters public understanding of science. Science Service has mailed search announcements to science educators at the nation's 20,000 public, private, and parochial high schools. Interested parties must request entry materials from Science Service at 1719 N St. NW, Washington, DC 20036, by phone at 202/785-2255, or by fax at 202/785-1243. Entries must be received at Science Service by **December 1, 1995**.

Search candidates are judged by a board of 11 distinguished scientists from a variety of disciplines. Three-hundred semifinalists are selected from a field of nearly 2,000 entries. From this group, 40 finalists receive all-expense-paid trips to Washington, DC, where they participate in final judging, in which primary emphasis is placed on open-ended questions designed to elicit evidence of the students' scientific creativity. Final judging for the present competition takes place March 6-11, 1996.

Westinghouse awards a total of \$205,000 in scholarships to the top 40 winners. First prize is \$40,000, second prize is \$30,000, and third prize is \$20,000. Three \$15,000 and four \$10,000 scholarships are also rewarded. The remaining 30

finalists each receive \$1,000 in cash. Westinghouse has been the sole sponsor of the competition since 1942. To date, the corporation has awarded scholarships of about \$3 million to more than 2,000 young scientists and recommended more than 15,000 semifinalists to colleges and universities.

The competition has identified young scientific talent with remarkable precision. To date, five finalists have gone on to win Nobel Prizes and two have won Fields Medals, the Nobel equivalent in mathematics. Three have earned the National Medal of Science. Nine Search alumni have been awarded MacArthur Foundation Fellowships, 56 have been named Sloan Research Fellows, and 30 have been elected to the National Academy of Sciences and 3 to the National Academy of Engineering.

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