

## **TRANSFER OF REINFORCERS: A PROCEDURE TO ENHANCE RESPONSE COST**

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The effects of a procedure involving the transfer of fines levied on a student engaged in inappropriate behavior to another student engaged in appropriate behavior is described. The data obtained indicated that the transfer procedure enhanced the effect of response cost, within a token economy, for middle school students in a special education class for children with behavior disorders. Possible reasons for the obtained effect and cautions about the use of the procedure are discussed.

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The effectiveness of response cost as an aversive control procedure has been well documented (Kazdin, 1972). The procedure appears to be effective for reducing inappropriate behavior in children with behavior disorders (Kaufman & O'Leary, 1972), achievement problems (Bucher & Hawkins, 1973), mental retardation (Burchard & Barrera, 1972), and in normal children (McLaughlin & Malaby, 1972).

There are two basic approaches commonly used in applying response cost to a behavior. The first has been called bonus response cost (Sulzer-Azaroff & Mayer, 1977) in which reinforcers are given to the subject and then removed through fines. The second approach is found most frequently in token economies. In this second approach (Kazdin, 1977), the subject must first earn reinforcers and then may lose them through fines.

The present study resulted from informal observations made by the senior author while using a bonus response cost procedure, employing primary reinforcers, with a mentally retarded subject.

During the use of this procedure, it was observed that the subject reacted more to a fine when the reinforcer was taken and given to another student than when the reinforcer was taken and returned to the supply container. The purpose of this study was to determine if the punitive effect of response cost could be increased by transferring token reinforcers from one student to another student.

### Method

#### *Subjects*

There were five male Caucasian subjects between the ages of 12 and 14. All of the subjects were classified as behavior disordered based on the criteria used in classifying behavior disordered (emotionally conflicted) students in Alabama. The definition used is essentially the same as that provided under the guidelines for implementing P.L. 94-142 (*Federal Register*, 1977, p. 42478). In brief, the behavioral criteria relate to an inability to establish and maintain satisfactory interpersonal relationships and inappropriate behavior or feelings manifest to a marked degree and over a period of time which adversely affects educational performance. All of the students were judged to have problems serious enough to warrant placement in a restrictive environment (i.e., a self-contained special education class).

#### *Setting*

This study was conducted in a class for the behavior disordered. The class was housed in a portable building located on the grounds of a public middle-school in a middle-class residential area of Mobile, Alabama. The class was staffed by a certified special education teacher and a paraprofessional teacher's aide. The classroom employed a token economy to manage academic, social, and independent functioning behaviors. The students earned points in the token economy for such things as task accuracy, task completion within the allotted time, getting started on time, and having necessary materials. The students lost points for inappropriate behavior. The behaviors to which response cost was applied were talking-out, out-of-seat, and discourtesy to others.

Each student could potentially earn approximately 300 points per day. The points could be used to purchase a daily free-time period of up to 30 minutes with a 10 minute minimum. Several activities were available during the free-time period: recreational reading; records at a listening center; various table games, e.g.,

Yahtzee; and art. Specific fees were charged for these various activities. One had to be able to purchase both some free-time as well as an activity. If a student could not afford a free-time period or could only afford a portion of the maximum available he used the period or a portion of it as a study period. Points could be accumulated across days but could not be carried over from one week to another. On Fridays, some type of beverage and popcorn could be purchased during the free-time period. This was made available to help absorb any excess points at the end of the week. This program was in effect for approximately three weeks before the study began.

#### *Data Collection*

Data collection was accomplished through the use of event recording (Sulzer-Azaroff & Mayer, 1977), an observational recording technique. Data were collected on talk-outs, out-of-seat, and discourteous behavior which were operationally defined as follows:

1. *Talking-out*. This was defined as any vocal or verbal emission that occurred during class time without prior approval from the teacher (5 point fine).
2. *Out-of-Seat*. This was defined as any position in which the student's buttocks were out of contact with the seat of his assigned chair without prior approval from the teacher (5 point fine).
3. *Discourtesy to Others*. This was defined as any inappropriate interpersonal behavior such as hitting another student, spitting on or at another student, name calling, or interfering with another student's work (10 point fine).

Data were collected by two independent observers on a daily basis during the daily academic work periods. The observers were given instruction and practice in the use of the recording procedure and operational definitions prior to commencing the study. Both observers were instructed to record any instance of inappropriate behavior observed regardless of whether or not the teacher responded to it. Recording was done on tally sheets divided into five columns. Each of the columns was labeled with one of five subjects' first names. Thus, a frequency count for each subject was taken during the daily academic periods.

Interobserver reliability was computed daily between the event records of the two observers. Reliability was computed using the formula (Sulzer-Azaroff & Mayer, 1977): agreements divided by agreements plus disagreements times 100. Interobserver reliability during the four phases of the study were 83%, 86%, 85%, and 100% respectively. Agreement across all phases and subjects averaged 88.5% with a range of 83% to 100%.

### *Procedure*

An ABAB reversal design (Hersen & Barlow, 1976) was used to evaluate the effect of the transfer response cost procedure. During the first phase (Baseline 1), the standard classroom management program previously described was in effect. In the second phase (Intervention 1), the transfer response cost procedure was implemented. The transfer procedure worked in the following manner. When a student was fined for violation of one of the classroom conduct rules, the fine points were transferred to some other student whose behavior was appropriate. Thus, the procedure provided bonus reinforcement contingent upon compliance with the classroom conduct rules and delivered on a variable interval schedule for students whose behavior was appropriate. For example, if student A broke the rule against talk-out, the teacher would go over and place a -5 on the student's point sheet. The teacher would then go to student X, who was being appropriate, and place a +5 on that student's point sheet. During the baseline condition, fines were simply entered on the student's point sheet. During the intervention procedure, the transfer procedure was carried out as described above.

The transfer procedure was explained to the students prior to implementing it and each day that the procedure was in effect, the students were reminded of it. The third phase (Baseline 2) was a return to the previously described baseline conditions. The final phase (Intervention 2) was a return to the intervention conditions already described.

### **Results**

The effectiveness of the transfer procedure was evaluated by both graphic analysis and by a nonparametric statistic. Figures 1 and 2 represent the frequency of inappropriate behavior exhibited by each subject on a daily basis. As can be seen in the graphs, the level of inappropriate behavior declined in the Intervention phases

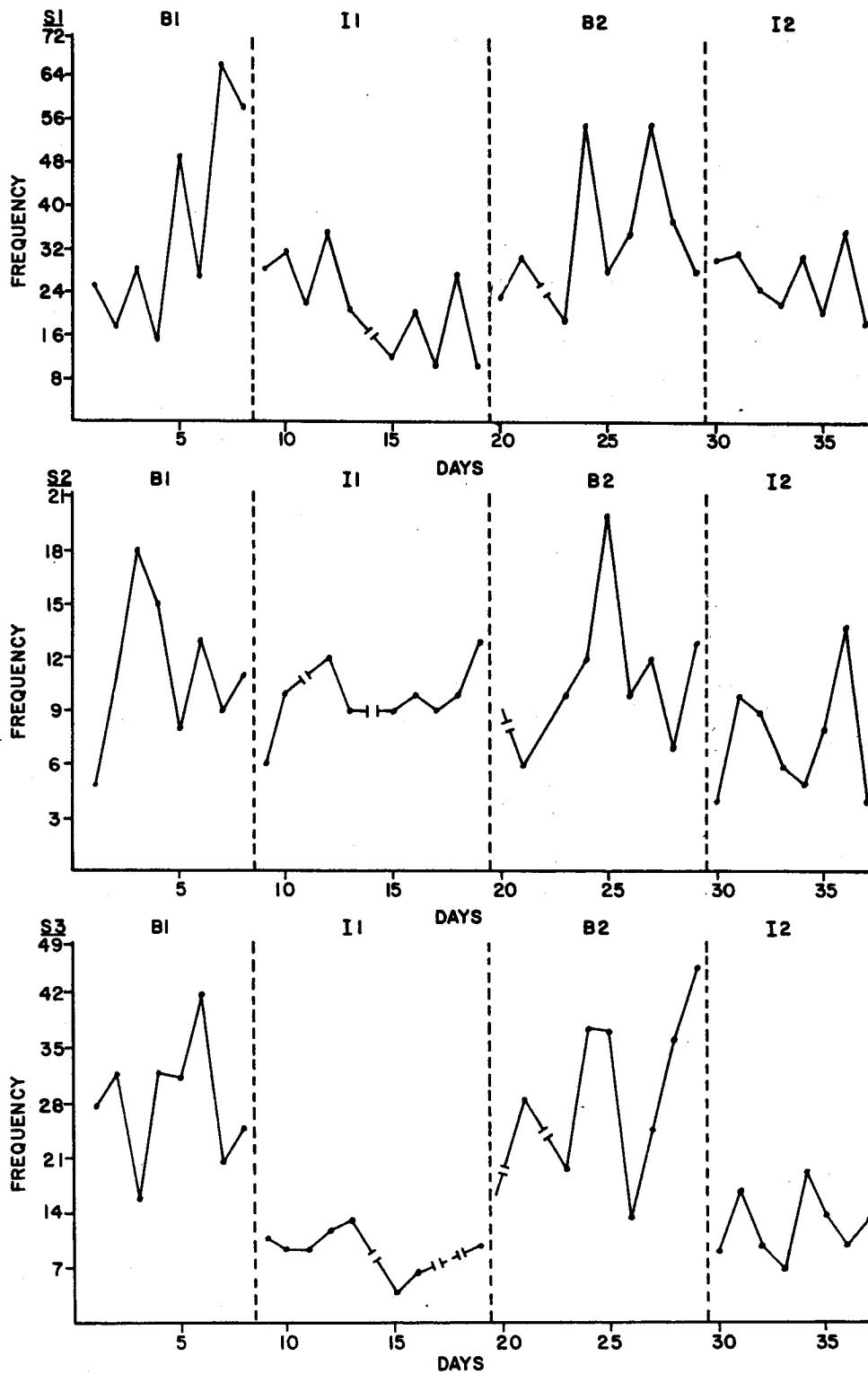


FIGURE 1. THE DAILY FREQUENCY OF INAPPROPRIATE CLASSROOM BEHAVIOR FOR BEHAVIOR DISORDERED SUBJECTS ONE, TWO, AND THREE.

when the transfer response cost procedure was applied. This effect is most clear for subjects one (S1), three (S3), four (S4), and five (S5). The effect can also be seen in the mean frequency of inappropriate behavior for each subject for the combined baseline phases and intervention phases in Table 1. The mean frequencies for all five subjects combined can be seen in the graph labelled GP in Figure 2. The mean frequency for all five subjects in Baseline 1 was 22.73, in Intervention 1, 10.83, in Baseline 2, 23.02, and in Intervention 2, 13.85. This graph clearly shows discontinuous phases across the Baseline and Intervention phases for the group as a whole.

In addition to the graphic analysis, the data for the individual baseline phases were evaluated against the data for each individual in the intervention phases. The statistic used was the Sign Test (Schwarzmueller, 1974), which has been shown to be an appropriate nonparametric statistic for use in behavior modification studies. The data used in applying the Sign Test is provided in Table 1. The Sign Test showed a significant change across the baseline and intervention phases at the .05 level.

In Table 1 it can be seen that the transfer procedure enhanced the response cost effects for each of the five subjects, though the size of the effects varied among the subjects. The data for the group as a whole (see Figure 2) indicate a good overall effect for the transfer procedure in the management of inappropriate behavior through the response cost component of the classroom management system.

### Discussion

This study suggests that the transfer procedure did increase the responsiveness of the subjects to the response cost procedure in the context of a token economy. Kazdin (1977) has suggested several procedures to facilitate the responsiveness of subjects to token economies. It appears that transfer may also be a facilitative procedure that can be employed in token economies which make use of response cost.

Why the transfer procedure increases responsiveness to response cost can probably be explained in several ways. First, there appears to be a social element involved in that a loss to a classmate seems to be more aversive than a loss that doesn't benefit anyone else. Second, there is an increase in the number of reinforcement operations that take place when transfer is utilized. There is not, however, any appreciable change in the actual

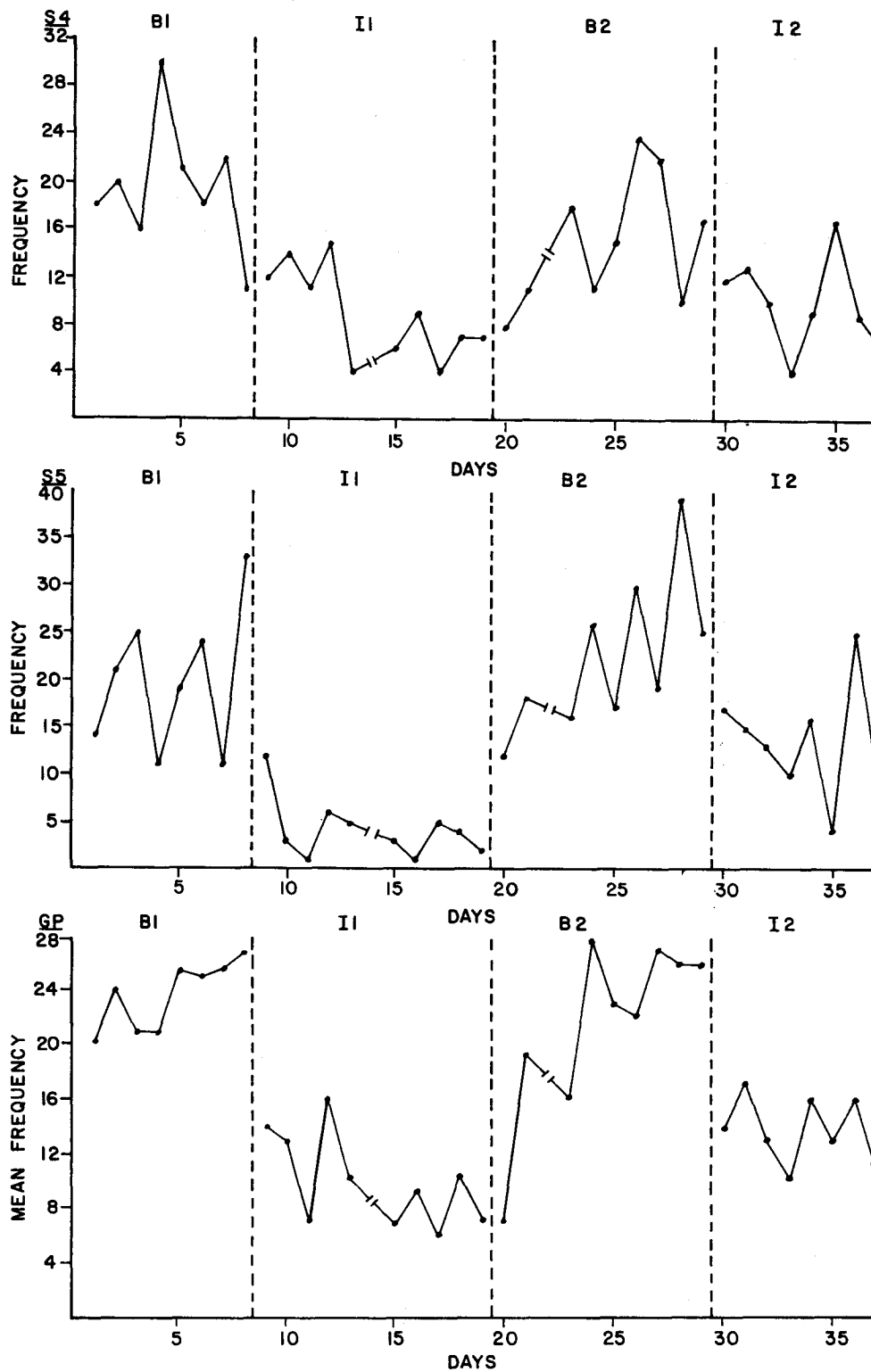


FIGURE 2. THE DAILY FREQUENCY OF INAPPROPRIATE CLASSROOM BEHAVIOR FOR BEHAVIOR DISORDERED SUBJECTS FOUR AND FIVE AND THE MEAN FREQUENCY FOR THE FIVE SUBJECTS COMBINED.

TABLE 1

Mean Frequency of Inappropriate Behavior  
Across Phases for Each Subject

	Baseline Phases $\bar{X}$	Intervention Phases $\bar{X}$	Mean Difference	Sign
S1	35.10	24.63	10.47	+
S2	10.94	8.64	2.30	+
S3	29.94	10.82	19.08	+
S4	17.31	9.52	7.79	+
S5	21.10	9.10	12.00	+

number of points earned by the class as a whole during the transfer condition, only a redistribution. Finally, the use of transfer introduces a modeling condition in that the transfer procedure focuses attention on appropriate behavior in peers and the positive consequences produced by that behavior.

While careful consideration should be given to the use of any punishment procedure, even a relatively mild one like response cost, the use of the transfer procedure to enhance the effect of response cost needs to be employed with caution. One consequence, in particular, which might occur is the aggravation of existing or the promotion of hostile feelings among certain students in the class. This side effect did not occur in the present study. However, the possibility was recognized and the students were monitored for any sign that this was happening. Taking note of this caution, transfer does offer several possible benefits including an increase in the effectiveness of response cost, an increase in the number of reinforcement operations carried out, and the direction of attention to appropriate models.

The transfer procedure, as used in the present study, was applied to response cost that removed token reinforcers that the subjects had earned. Transfer may also enhance bonus response cost where the tokens are not earned. The effectiveness of the procedure with bonus response cost remains to be demonstrated. The effects of the transfer procedure demonstrated in the present study need to be replicated on different populations and in different contexts before it can be considered to be clearly validated and of general utility.



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