ELIMINATING DISCIPLINE PROBLEMS BY STRENGTHENING ACADEMIC PERFORMANCE¹

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Behavior modification procedures have typically been used to eliminate discipline problems in the classroom through reinforcement of nondisruptive behavior. This report demonstrates an alternative approach whereby discipline problems are eliminated by reinforcing relevant academic skills. Five fifth-grade boys, identified by their teacher as discipline problems, were observed. The teacher conducted 15-min performance sessions in her reading class during which written academic performance and disruptive behavior were recorded. These measures indicated that the boys' average level of disruption was 34%, while their reading performance was below 50%. When systematic token reinforcement was applied to reading performance only, the rate of disruption fell drastically, and reading performance increased. When the reinforcement procedure was withdrawn, disruption again rose, and reading performance declined. The reinstatement of reinforcement doubled reading performance and eliminated disruption.

Perhaps the most common request from classroom teachers for professional assistance is for aid in maintaining the orderly behavior of students. Teachers' attitudes regarding classroom discipline seem to fall into two categories: those who can tolerate no disruption, and those who feel that disruption can be tolerated up to the point at which it begins to interfere with the achievement of nondisruptive students in the classroom. In either case, recent research in applied behavior analysis has demonstrated that these problematic behaviors can be reduced or eliminated through a direct approach; *i.e.*, reinforcement for refraining from engaging in disruption (O'Leary, Becker, Evans, and Saudargas, 1969; Barrish, Saunders, and Wolf, 1969).

This direct approach to eliminating disruptive

behavior has also been criticized (Winett and Winkler, 1972). It has been suggested that rather than contributing to effective learning, applications of behavior modification procedures have most often led to a strengthening of the *status quo*: that which measures teacher effectiveness not by increases in student performance, but by the maintenance of orderly, docile, obedient students. This view is supported by recent findings indicating that reducing disruption may not necessarily lead to an increase in academic achievement (Ferritor, Buckholdt, Hamblin, and Smith, 1972). Winett and Winkler further suggested that student behavior often considered inappropriate, such as walking around the classroom, talking to other students, *etc.*, may actually be desirable from a learning standpoint, as in the "open" classroom, in which student interaction is considered appropriate behavior. Winett and Winkler challenge the validity of selecting "disruptive behavior" as the criterion for education. O'Leary (1972), in a rejoinder to Winett and Winkler, admitted that there was some justification for the criticism, and while the subject had been discussed by behavior modifiers at conferences, concise documentation of alternative uses of the techniques of applied

¹We wish to thank Marie Smart, the Principal of the Warren T. Jackson School, for inviting us into her school and supporting our every effort while there; Dr. Jarvis Barnes, the Assistant Superintendent for research and development of the Atlanta Public Schools, for his continued guidance and direction of our classroom research efforts, and the teachers from whom we learned so much, Marjorie Delozier and Mary Lee. Reprints may be obtained from Teodoro Ayllon, Department of Psychology, Georgia State University, 33 Gilmer Street, Atlanta, Georgia 30303.

behavior analysis in the classroom had yet to be presented.

Could children learn in the traditional setting without first eliminating disruptive behavior? At present, no such efforts have been explored, perpetuating the elimination of "disruptive behavior" as the *only* objective that the classroom teacher knows is subject to control by behavior modification.

Instead of relegating the teaching of academic skills secondary to the all-out effort to maintain orderliness in the classroom, it would appear educationally relevant to reverse these priorities. Rather than producing students who merely refrain from "inappropriate behavior", the present study attempted systematically to strengthen the students' academic skills and observe the concurrent effects on disruptive behavior.

METHOD

Subjects

The subjects were drawn from an entire fifth-grade class of 38 students. At first glance, it appeared that the entire class was highly disruptive. To avoid spending an inordinate amount of time observing each of the 38 students, two teachers who were familiar with the children rank-ordered the 38 students according to disruptiveness. Both teachers independently ranked the same five boys as most disruptive, and these five were selected as "target children" for the present study.

Setting

The fifth-grade classroom was located in an urban public school. Its 38 students had begun the year with one teacher. Within two months, disruption became so severe a problem that the principal added a second teacher, with the hope that a team-teaching approach would be more successful. For the next three months, discipline problems persisted without apparent change. Well into mid-year, the principal requested professional assistance for this classroom.

Personnel

To minimize interruption of the classroom schedule of normal activities, only one of the two teachers was asked to implement the new procedures. A graduate assistant was available to assist in designing suitable methods for behavioral intervention.

Response Definitions

The definitions of disruptive behavior used were similar to that of Becker, Madsen, Arnold, and Thomas (1967) and included:

1. Out of seat without teacher's permission: *i.e.*, standing, running, walking around, *etc.*
2. Talking out: *i.e.*, audible vocally or manually produced sounds made during a time in which students should be working or listening.
3. Engaging in any motor behavior that interfered with another student's studying: *i.e.*, any physical contact with another student, his desk, or any objects on it.

All other behavior was considered non-disruptive.

Academic Behavior

The definition of academic behavior was arrived at through the teacher's suggestion that the class was deficient in reading skills. Reading performance was therefore defined as the percentage of correct answers in daily performance sessions. Performance sessions were 15 min in duration and immediately followed the oral or group-reading activities. Students were required to produce written answers to the test material that was selected daily by the reading teacher. It consisted of standard reading workbook assignments, usually one to two pages, involving comprehension, vocabulary, and/or other reading skills.² Throughout the study, including the period of baseline, the teacher, using her professional experience, determined each specific assignment to be the appropriate amount of

²Durr, W. K., LePere, J. M., and Alsin, M. L. *Workbook for images*. New York: Houghton Mifflin, 1971.

work for the students to finish within the 15-min session. She took special care to ensure that assignment length was consistent throughout the study. No systematic effects of assignment length were observed. Student papers were scored by the reading teacher according to the answer book provided by the workbook publisher during the students' recess period.

Procedure

Measures of disruptive behavior and academic performance were collected daily during 15-min performance sessions. Reading assignments requiring objective written answers were given, and all students' questions about the assignments were answered. A bell timer was then set for 15 min and the papers were collected immediately after the bell sounded.

Disruptive behavior was recorded in a method similar to that of Ayllon (*unpublished*). Each of the five target children was observed during twelve 10-sec intervals randomly distributed across the total 15-min period. Thus, each child was observed for 2 min per 15-min session, and the group of five was observed for a total of 10 min during each 15-min session. Using a stopwatch and data pad, the observer watched each child for 10 sec, then indicated whether during that interval the child had exhibited any disruptive behavior. The total number of disruptive intervals for all students divided by the total number of intervals yielded the percentage of disruptions.

Reliability checks upon the incidence of disruptive behavior were made by a second observer. Checks were made at the beginning, middle, and end of each of the first two phases. These six checks resulted in interobserver agreement ranging from 85% to 93%.

The Point System

To strengthen completion and accuracy of the students' performance, a token economy system was developed. Briefly, this system enabled the child to earn recognition (points) for his efforts. Points could then be exchanged for

a wide variety of activities, privileges, and priorities.

Prices and performance requirements were explicitly stated on mimeographed sheets posted throughout the classroom. (See Table 1). Back-

Table 1

Information sheet for academic performance criteria and back-up reinforcers cost.

Points Earning Criteria for Fifth-Grade Reading Class

1. 80% correct on workbook assignments = 2 points
2. 100% correct on workbook assignments = 5 points

Back-up Reinforcers

Daily

1. Access to game room (per 15 minutes)	2 points
2. Extra recess time (10 minutes)	2 points
3. Buy a ditto master	2 points
4. Have ditto copies run off (per copy)	1 point
5. Review grades in teacher's book	5 points
6. Reduce detention (per 10 minutes)	10 points
7. Change cafeteria table	15 points
8. Have the lowest test grade removed	20 points
9. Become an assistant teacher	Auction

Weekly

1. See a movie	6 points
2. Have a good work letter sent to parents	15 points
3. Become the classroom helper for one week	Auction
4. Become the ball captain for one week	Auction
5. Do bulletin board (will remain up for three weeks)	Auction

up reinforcers (activities for which earned points could be exchanged) were determined by observing the children when all activities were freely available and through their requests for activities, privileges, and priorities. Those activities in which only one child could participate at a time were assigned through daily or weekly auction, with the student offering the most points awarded the activity.

Each child was given a 3 by 5-in. card daily upon which appeared his name, the number of points he had earned the previous day, and a listing of the various activity areas in which points could be spent. To gain access to any of the back-up reinforcers, the child had to present his card to the teacher. If the teacher observed

that the child had enough points for the desired activity, she marked his card in the appropriate activity area.

If the earned points were insufficient for the desired activity, the child was so informed and given additional opportunities for earning points. Points not spent during one day could be spent later.

Experimental Design and Reinforcement Contingencies

An ABAB experimental design was used to evaluate the effectiveness of the behavioral intervention. First, a baseline of the students' academic performance was taken under conditions of no reinforcement. Next, a period of reinforcement for reading was introduced. During the next phase, reinforcement was discontinued. The final phase consisted of reintroducing reinforcement conditions. Across all phases of the experimental design, concurrent measurements of disruptive behavior and academic performance were obtained.

During periods of reinforcement, the teacher announced that students would earn two points

when they obtained a minimal score of 80% correct on written assignments. Five points would be earned if the assignment was 100% correct. When reinforcement was discontinued, the teacher announced that assignments would continue to be corrected and returned as before, but points would no longer be given. No contingencies or differential feedback were given for disruptive behavior.

All students in the reading class participated in the reinforcement program, but disruption and academic performance data were collected for only the five target students.

RESULTS

Reinforcement of academic performance increased reading accuracy for the five target students. Whenever academic performance was reinforced, the concurrent disruptive behavior decreased in frequency. As can be seen in Figure 1, both the mean academic accuracy and the mean per cent of disruptive behavior were in the 40% to 50% range during the baseline period. The initial reading reinforcement phase

Fig. 1. Mean per cent disruption and mean per cent correct on reading assignments for the five target students. Each point represents 30 min of assignment time.

resulted in approximately 70% reading accuracy and a concurrent drop in disruption from about 40% to 15%. The return to baseline conditions led to decreased reading accuracy and increased disruption from 8.7% to about five times this level, or 40%. The final reinforcement phase rapidly increased accuracy, going to approximately 85%, and drastically reduced disruptive behavior, from 40% to about 5%.

Although each of the five target students had been at least 50% disruptive or higher during baseline, by the end of the first reinforcement phase all but one were consistently less than 25% disruptive. The remaining child exceeded this low level of disruption only once during the same period. During the return to baseline, all five boys displayed disruptive behavior of 37% or greater. When academic performance was again reinforced, disruption fell to less than 15% for each of the five children.

All but one of the five children showed significant academic improvement. The exception to this finding was the same child who persisted in disruption somewhat longer than did his peers.

DISCUSSION

This study demonstrated that a reciprocal relationship may exist between academic performance and disruptive behavior: not the traditionally held "make them sit still so they will learn", but rather a "teach them better and they may sit still" relationship.

This study is of critical interest to educators because it demonstrates that a positive approach to education; *i.e.*, a focus on academic objectives, rather than on undesirable behavior, reduced problematic behaviors.

The traditional view that behaviors such as talking, walking around the room, *etc.* during class time are disruptive was confirmed by the behavior of the students themselves. They were observed to make such comments as: "Shut up, I'm trying to do my work", and "Quit bugging me, can't you see I'm reading?" during the

phases in which they could earn points. These kinds of student-to-student statements and the fact that inappropriate behavior decreased with increasing academic performance indicate that these behaviors, whether "disruptive" or "incompatible", are certainly not conducive to academic learning. This study also suggests, as others (Ayllon, Layman, and Burke, 1972) have pointed out, that the teacher who demands classroom order before the pursuit of academic objectives may not be doing her students a service.

Since the present study was conducted in an affluent, upper-middle class public school with students at, or above, grade level in achievement, these results may be peculiar to individuals with well-developed academic repertoires. Such individuals immediately respond to reinforcement, as shaping academic performance is not necessary, only its acceleration. It would appear that as academic performance increases, the probability of occurrence of other classes of behavior decreases. Nearly all of the previously published studies that dealt directly with disruptive behavior were conducted in schools with "underachieving" students from low socio-economic backgrounds. For these individuals, reinforcement of academic behavior may not be sufficient to override disruption, as many of the components of academic responses must first be shaped. During shaping, the stronger behavior is likely to be disruption, requiring additional procedures to control it. The present findings and their interpretation would suggest that prior emphasis on direct elimination of disruptive behavior was appropriate for the underachieving children usually studied. While there may be alternative interpretations of the above findings, only systematic research will resolve this issue.

The drastic reduction in disruption when reading performance was reinforced did not generalize to other academic periods, despite the use of the same classroom, the same teacher, and the same classmates. This phenomenon confirms the findings of Lovaas, Koegel, Simmons, and Long (1973), indicating that generaliza-

tion cannot be expected to occur without purposefully designing its occurrence.

The classroom teacher faced with discipline problems may now choose among three methods of dealing with problem behaviors: (1) Alteration of stimulus conditions. Ayllon *et al.* (1972) found that simply introducing precise temporal requirements and highly structured methods of distributing and collecting academic materials and assignments can eliminate discipline problems without the use of systematic reinforcement. (2) Direct elimination through differential reinforcement of other behaviors. Among others, O'Leary *et al.* (1969) demonstrated that rewarding children for refraining from disruption can be an effective procedure in eliminating these problems. These two methods, however, do not necessarily result in increased academic performance. Once disruption is eliminated, additional procedures must be employed if increased academic performance is desired. (3) Indirect elimination of disruptive behavior through reinforcement of academic performance. The present study offers a third method for dealing with disruptive behavior. It consists of making the objective of learning paramount for behavioral intervention. In this way, disruptive behavior is indirectly, but effectively, eliminated.

While an indirect approach to reducing disruption through reinforcement of functional behaviors would therefore seem best to fit educational objectives, a combination of both direct and indirect methods may be necessary in some settings. Severe behavior problems may require direct reduction methods initially, later adding or substituting reinforcement for academic performance. In each setting, however, the primary objective of the teacher and of the behavior modifier should be to establish a consistent

learning environment for the development of educational skills.

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Received 9 July 1973.

(Revision requested 19 September 1973.)

(Final acceptance 27 December 1973.)