

A CONDITIONING TECHNIQUE APPLICABLE TO ELEMENTARY SCHOOL CLASSROOMS

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A procedure was developed for use in a public school classroom where only one of the children needed treatment, sophisticated apparatus was not feasible, personnel were untrained in conditioning techniques, and where disruption had to be minimized. Candy reinforcers were contingent upon working behavior. The total candy earned in the session was divided equally among the class. Portable radio control apparatus was adopted to give feedback to the child when he was displaying the desired working behavior. An increase in working behavior and a decrease in talking aloud and out-of-seat behavior was observed for each of the four subjects. When the feedback apparatus was removed, the desired behavior was maintained through candy reinforcement alone in all four subjects.

Studies using a variety of subjects have reported on the control of classroom behavior in both institutions and special class settings. Birnbrauer and Lawler (1964) and Birnbrauer, Bijou, Wolf, and Kidder (1965) worked successfully with institutionalized retarded subjects. Zimmerman and Zimmerman (1962), O'Leary and Becker (1967), and Martin, Burkholder, Rosenthal, Tharp, and Thorne (1968) reported behavioral control with emotionally disturbed subjects in special class situations. Wasik, Senn, Welch, and Cooper (1969) implemented effective procedures for culturally deprived subjects in a special school. Meichenbaum, Bowers, and Ross (1968) reduced the inappropriate classroom behavior of institutionalized female adolescent delinquents, while Phillips (1968) used tokens and privileges in a residential facility for "pre-delinquent" boys. Nolen, Kunzelmann, and Haring (1967) and McKenzie, Clark, Wolf, Kothera, and Benson (1968) modified the behavior of a group of

special class subjects described as having learning disabilities.

Generally, most of the research concerned with controlling classroom behavior has occurred in institutional and/or special class settings in which the entire class received treatment, sophisticated apparatus could be used, and personnel could be relatively easily trained in conditioning skills. Because these conditions do not typically prevail, different kinds of conditioning procedures would appear necessary in the public school classroom. The recent trend toward non-institutionalization and the growing disenchantment with special education classes would seem to give additional impetus to the development of conditioning methodologies applicable to the regular classroom. Dickinson (1968), Madsen, Becker, and Thomas (1968), and Walker and Buckley (1968) reported some success in this regard.

Working with a 9-yr-old subject in a regular classroom, Patterson (1965) developed a procedure in which the subject was signalled when he had earned a candy or penny reinforcer for appropriate attending behavior. At the end of each conditioning session, the total earnings were shared equally with his classmates. The results showed "a significant decrease in the number of responses per minute when comparing the baseline operant with the conditioning scores [p. 373]."

However, due to the existence of a number of methodological problems in Patterson's study, a definitive evaluation of his procedure

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depends on further research. Therefore, the objective of the present study was to replicate Patterson's technique with several subjects while also making necessary methodological revisions, which were to include; (a) establishing inter-observer reliability at 0.80+ before collecting baseline, (b) defining a classroom activity for each subject that would remain constant throughout the study, and (c) utilizing a reversal experimental design.

In addition to evaluating Patterson's paradigm, by replication and methodological revision, another objective of this research was to expand and perhaps to refine Patterson's procedures. Thus, it was proposed that radio control apparatus be adapted to minimize classroom disruption while at the same time permitting the subject and experimenter flexibility and mobility not possible with equipment using house current.

METHOD

From a population of 2752 elementary school children in grades 1 to 6, teachers, principals, social workers, and school psychology interns submitted 43 names of children who were considered to represent serious behavior problems. Computer analyses of behavior ratings, teacher conferences, and screening observations were made until four subjects from four different schools had been selected as meeting the criterion of manifesting a high frequency of overt inappropriate behavior.

Subjects

Subject A was an 8-yr-old male first-grade "repeater" with a history of "extreme unmanageability, frequent fighting, tantrums, and an inability to function in group situations." His home had recently deteriorated to the extent that he and his brother had been placed with a foster parent. During two screening observations, this subject moved continuously about the room talking to himself and hitting other children.

Subject B was an 8-yr-old male second-grader who had been referred to school psychological services for the past two years because of "restlessness, distractability, inattention, and hyperactivity". During one of the screening observation periods, he was observed roaming about the room for the entire 15 min.

Subject C was a 9-yr-old male second-grader

who had been referred for three successive years because of "hyperactivity and disruptive, aggressive behaviors". There was a history of physical aggression against both peers and teachers. During each of three 15-min informal screening observations, Subject C spent most of the time out of his seat sharpening his pencil and noisily talking to classmates.

Subject D was a sullen, obese, 12-yr-old female fifth-grader who had a consistent history of "serious behavior problems" and marginal academic performance. She had been threatened with expulsion because of allegedly running a gang that extorted money from other children. At the time of both preliminary screening observations, Subject D roamed the room at will, talked aloud, hit other children, and refused to conform to discipline. On one occasion, despite teacher warnings, she remained out of seat for the full 15-min observation period.

Apparatus

The transmitter was a 9-v model airplane radio unit that activated a Veeder-Root resettable counter from a range of up to 200 ft (Coleman and Toth, 1970). Pressing a switch transmitted an audible click and registered a count in the recessed window of the digital counter near the subject. Both units were portable and immediately operational.

Procedures

A situation was defined for each subject so that the same kind of classroom activity would occur at the same time of day throughout the study. For Subjects A, B, and C, the situation was one in which the subject was expected to work quietly and independently at his desk while a small group of children met with the teacher for reading. For Subject D, the situation was the first part of an afternoon language class in which the class was expected to accomplish a written assignment.

The three target behaviors were: (1) talking aloud, defined as any unsolicited verbalization; (2) out of seat, defined as being up from desk without permission; and (3) working, defined as looking at a book and/or writing, drawing, coloring, but not doodling.

A noncontinuous or discrete observational technique was followed in which behavior was recorded during three alternating 10-sec intervals of each minute for the 15-min sessions.

O'Leary, O'Leary, and Becker (1967) had maintained that non-continuous observing increases reliability. Insofar as this study was concerned, this observational technique also permitted the observer to look away from the subject to make it less obvious that he was being observed.

Two observers recorded data. Inter-observer reliability was computed for within-interval agreement for behavior occurrence by dividing total agreements by disagreements plus agreements for each cell of the three categories of behavior. Reliability ranged from 0.77 to 1.00 with a mean of 0.91. Only one category from one observation session was below the criterion of 0.80 for five days of 20 observations.

Next, baseline data were obtained for each subject until the subjects' behavior appeared relatively stable or until a minimum of 10 baseline observations had been made over a 10-day period.

After tabulation of baseline, each subject received an individual pre-training session in which the experimenter gave the subject a book or paper and pencil with instructions to pretend he was in class. Working behavior resulted in a counter click and an M&M on a continuous-interval schedule of 10 sec. It was then explained that he and the experimenter were going to do the same thing in his classroom and that each time he heard a "click", he had earned a piece of candy by doing his work. The subject was also advised that the only difference would be that he would share his earnings with his classmates.

At this point, the subject and the experimenter returned to the classroom where the experimenter addressed the class as follows:

As you know, (subject's name) sometimes has trouble sitting still and doing his work. This machine is going to help him. Each time it clicks, it means he has earned a piece of candy by doing his work. This machine will also keep score. At the end of the session, (subject's name) will divide his candy among all of you. You can help by doing your work and not bothering (subject's name).

During Condition 1 (CN 1), working behavior defined as looking at book, and/or writing, drawing, coloring, but not doodling, was conditioned with a counter "click" using a variable-interval schedule with a 10-sec mean. At the beginning of each session of CN 1, and

also on those occasions when the subject ignored interruption or harrassment from another pupil, the rate of reinforcement for work behavior was increased. Following CN 1, a reversal phase was introduced in which all experimental manipulations and contingencies were removed. This was in turn followed by a reinstatement of CN 1, thus following an ABA experimental design.

To measure the contribution of the apparatus itself to the conditioning technique, Condition 2 (CN 2) consisted of withdrawing the apparatus from the procedures. The subject was instructed that he had been doing very well with the help of the machine, but that the experimenter now wanted to see how hard the subject would work without it. The subject was told that the experimenter would keep score instead of the machine and that if he did his work, he could earn as much candy as he had with the machine.

RESULTS

As can be seen in Fig. 1, there was an increase in working behavior and a decrease in talking-aloud and out-of-seat behavior for all four subjects when comparing baseline with CN 1 data. Reversal procedures resulted in behavioral frequencies that approximated baseline. Although the data obtained for CN 2 (removal of apparatus) were quantitatively insufficient, the frequencies obtained for the two sessions suggested that the control established in CN 1 was maintained in CN 2.

DISCUSSION

The conditioning technique developed by Patterson (1965) and described as CN 1 in this study was effective in controlling classroom behavior and would, therefore, seem useful in classroom situations where the entire classroom population is not being treated, elaborate apparatus is not feasible, and staff is essentially untrained in conditioning skills.

The radio control apparatus, which was small, completely portable, and immediately operational, permitted the examiner to enter a classroom unobtrusively and at once begin the conditioning procedures. It also allowed the examiner mobility that would not have been possible with house current. The factor of experimenter mobility would seem to be

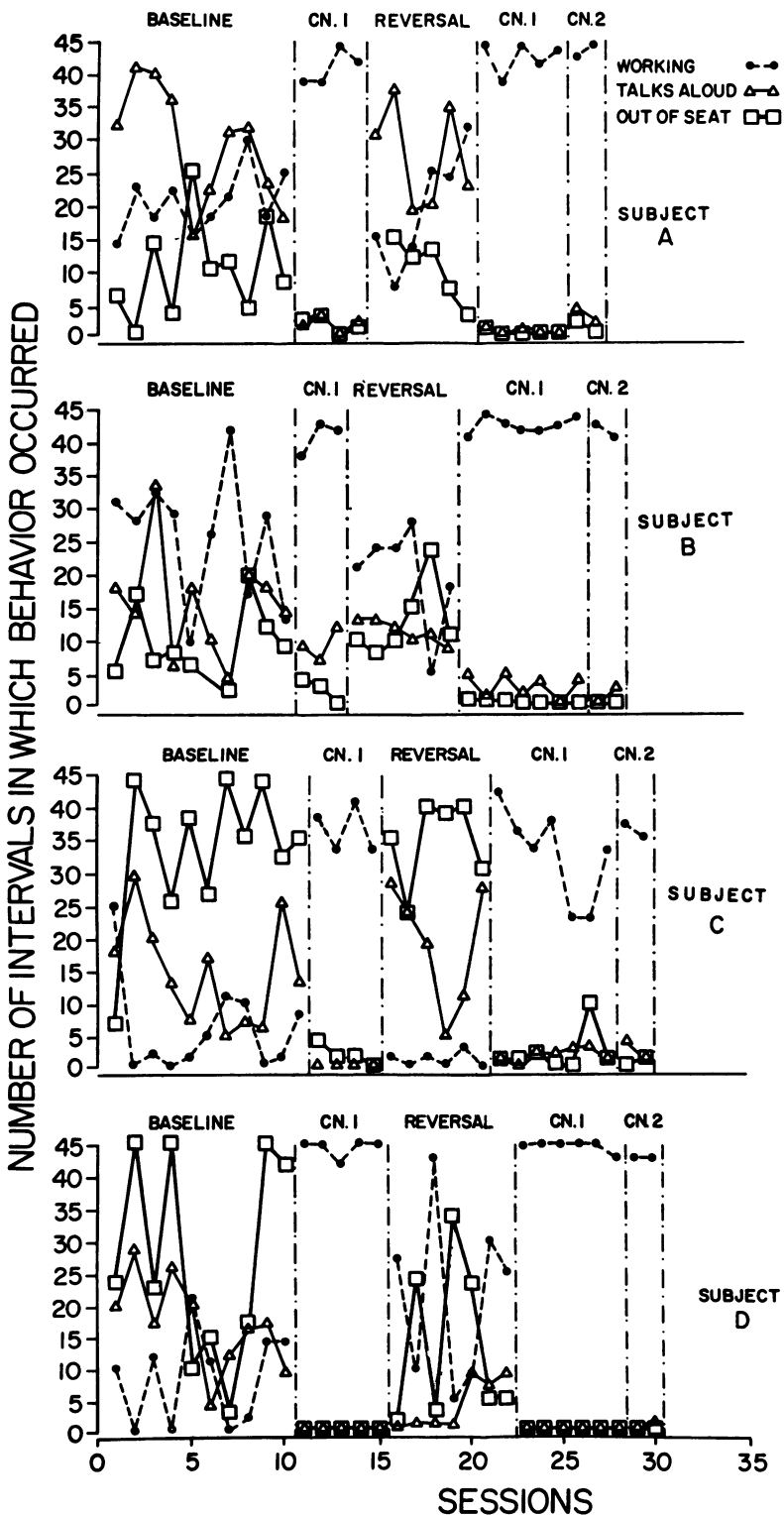


Fig. 1. Behavioral records showing the relationship between talking aloud, out-of-seat, and working responses for the four subjects.

critical in a public school elementary classroom where, to be inconspicuous, one needs to be able to adapt to a typically loose structured and frequently unpredictable regimen.

After behavioral control had been established, teacher praise was used to attempt to transfer behavioral control from the experimenter to the teacher. Apparatus was developed consisting of a timer that activated a blinking light using a variable-interval schedule with a 3-min mean. The teacher was instructed to look at the subject when the light was flashing. If the subject were working appropriately, she was to praise him. To help support this procedure initially, the teacher was also to administer candy to the subject at the end of the session for completed and proficiently done assignments. During this procedure, the candy was no longer shared. Only one teacher was able consistently to follow instructions in terms of when and how to administer verbal praise. Another teacher was reacting so negatively to one of the subjects (Subject C) that she refused to praise the child. In general, the teacher's concern for academic excellence seemed to preclude praising just "good" behavior. In any event, the evidence was insufficient to indicate whether or not teacher praise was sufficiently reinforcing to control the behavior of any of the subjects.

Although a functional analysis of the variables contributing to CN 1 was begun in CN 2, the imminent ending of the school year precluded fruition of a systematic analysis of the effects of the various treatment variables. This approach needs considerable research attention.

Institutional and/or special class situations would be expected to be sufficiently different from those in a public school classroom, so that conditioning procedures that have been demonstrated to be effective in the former would not be necessarily applicable to the latter. If conditioning procedures could be made appropriate to the public school classroom, not only would the need for institutional and special class placements be reduced, but the operations of the classroom and the entire educational milieu could perhaps be put into the testtube of an experimental analysis of behavior.

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