The Timer-Game: A Variable Interval Contingency for the Management of Out-of-Seat Behavior

Abstract: The timer-game was demonstrated to be a practical and effective procedure for managing the out-of-seat behavior of elementary school children in a remedial classroom. The timer-game allowed the students to earn token reinforcement by being in their seats whenever the bell of a kitchen timer rang. The bell rang about once every 20 minutes. In a second experiment, peer reinforcement was applied in conjunction with the timer-game to manage one student's out-of-seat behavior.

Although the ability to maintain an orderly classroom does not necessarily result in the achievement of academic goals, orderliness is often considered to be a prerequisite for effective teaching. Thus, it is not surprising that the management of classroom behavior has become a focus of applied behavioral research (Wolf, Giles, & Hall, 1968; Barrish, Saunders, & Wolf, 1969; Madsen, Becker, & Thomas, 1968; Hall, Lund, & Jackson, 1968; Thomas, Becker, & Armstrong, 1968; O'Leary, Becker, Evans, & Saudargas, 1969; Osborne, 1969).

Wolf, Giles, and Hall (1968) described an experimental remedial classroom for low achieving sixth-grade children in which academic behavior was supported by a token reinforcement system. One classroom problem was a moderately high rate of out-of-seat behavior, a common problem characterized by apparently aimless wandering, extended stays in the lavatory, prolonged pencil sharpening, and more visiting than is considered desirable. A technique was introduced for managing the out-of-seat behavior. It involved the occa-
sional ringing of a kitchen timer that was set by the teacher to ring after intervals of varying durations, averaging about 20 minutes. Every student who was in his seat when the timer rang avoided the loss of tokens. While it seemed that the timer game was effective in reducing out of seat behavior, no objective data was presented. The present study describes an empirical evaluation of the effects of the timer game.

**Experiment I**

**Method**

**Subjects and setting.** A group of 16 low-achieving children from a low-income, urban elementary school attended a remedial class every day after school. Fourteen of the children were fourth-graders and two were third-graders. The children met each afternoon for 3 hours. They were instructed to complete homework and remedial assignments. Tokens (points), which were given for correct answers, were supported by backup reinforcers such as snacks, candy, clothes, and field trips. The physical setting, token reinforcement contingencies, remedial education program, and materials have been described in detail elsewhere (Wolf et al., 1968).

**Response definition.** The out-of-seat behavior of the students was recorded by an observer. The one-hour session was divided into 30-second intervals. During each 30-second interval the observer would look at each student in a predetermined order and count the number who met the criterion for being out of their seats. The response definition required that “the seat portion of the child’s body not be in contact with any part of the seat of the child’s chair.”

The out-of-seat behavior was independently measured by a second observer during two sessions. The number of instances of agreement about the presence or absence of the response in each 30-second interval for each student was calculated. The two sessions yielded agreements of 93 and 94 percent between the two observers.

**Experimental conditions.** There were three conditions. Baseline rate of the out-of-seat behavior was first obtained for each child for seven sessions. The timer-game was then introduced. On the average of once every 20 minutes the timer rang. (The range of intervals between rings was zero to 40 minutes.) Every student who was in his seat when the timer rang earned 5 points. Five points was a very small proportion of the average student’s accumulation of approximately 400 points per day. The timer-game was continued for six sessions. The baseline condition was then reinstated for seven sessions.

**Results**

As Figure 1 shows, the timer-game was effective in reducing the out-of-seat behavior. Each dot corresponds to the number of intervals a particular student was out of his seat. The heavy line indicates the average amount of out-of-seat behavior for the entire class each day under each condition. On the average, 17 intervals containing out-of-seat behavior per child were recorded per session during baseline. The introduction of the timer game reduced the average to about 2 intervals per child. A return to the baseline condition resulted in an increase in the number of the out-of-seat responses to an average of 17 intervals per child.

**Experiment II**

**Method**

**Subject and setting.** One of the students (Sue) in Experiment I whose behavior was not greatly modified by the timer-game was the subject of this study. The classroom procedures and token reinforcement system were the same as in Experiment I. Out-of-seat behavior was recorded by an observer for 1½ hours each day using the same response definition as in Experiment I.

**Individual points condition.** Sue’s out-of-seat behavior was observed under the baseline condition and two slightly different
contingency conditions involving the timer-game. Under the first contingency condition Sue was told that she would have an opportunity to earn extra points by playing the timer-game. A 9 x 3 inch piece of construction paper was attached to the wall. The numbers 10, 20, 30, 40, and 50 were drawn on the paper with a marking pen. Sue was told that she would be given 50 points at the beginning of each session but that she would lose 10 of these points each time she was out of her seat when the timer rang. In such instances, the teacher would cross off the highest number on the paper, indicating the number of Sue’s points that remained. The timer was set to ring after varying intervals but on an average of every 10 minutes.

Peer points condition. In the second contingency condition Sue and the other students were told that the rules of the game would be changed slightly so that more children could play. The new rule was that Sue would still be able to earn points for herself, but that she would also earn points for the four students who sat closest to her. At the end of the session the points remaining from the original 50 would be divided equally among Sue and her four peers. For example, if 40 points remained, Sue and the others would earn 8 points each.

Results

Figure 2 shows that the individual points condition resulted in an immediate decrease in the amount of out-of-seat behavior that occurred during the no points condition. However, the peer points condition resulted in even greater suppression although Sue earned only one-fifth as many points as she did under the individual points condition.
Discussion

The timer-game was an effective technique for decreasing the out-of-seat behavior of the students in the remedial classroom. It was also practical since it did not require continuous monitoring by the teacher. The teacher needed to observe only the out-of-seat behavior that occurred when the timer rang. The purpose of the variable interval contingency rather than a fixed interval contingency was to reduce the likelihood that the students would discriminate the time when the bell was about to ring. The bell was just as likely to ring after having just rung as to ring only after a very long interval.

The peer points condition resulted in more control over Sue's out-of-seat behavior than the individual points condition. Exactly what the peers contributed to the effect must await further analysis. Our impression was that they provided a number of consequences and other functions for Sue. For example, if she stood up, she was immediately reminded to sit down. If she broke her pencil, which she often did, one of the four peers would volunteer to sharpen it for her. If she went to the lavatory, she was reminded to hurry. However, the extent of their attending behavior was not determined.

The results of the peer points condition correspond to the results of a peer contingency in a classroom setting described by Patterson (1965) where he modified the hyperactive behavior of a second-grade child. Patterson arranged for the child to earn M & M's at the rate of one every 10 seconds when he was attending appropriately. The M & M's were then shared with all the members of the class. Patterson reports that while it was difficult to evaluate the roles of both the M & M's and the peers, his opinion was that the peers had some influence in reducing the hyperactive behavior. Since in Experiment II of this study the role of points for the indi-

FIGURE 2. Experiment II. The number of intervals containing out-of-seat responses made by Sue throughout several experimental conditions.
individual student was analyzed independently of the effects of points for the peers, it was clear that the peers did make a contribution beyond the points themselves. The question of how the peers made their contribution remains for further analysis. Other researchers (Graubard, 1969; Sloane, 1969) have reported success in adapting the timer-game to a variety of classroom situations.

It is likely that Sue's reaction to the peer condition may not be common to all students. There may very well be students for whom the peer attention generated by the peer points condition would serve to strengthen the out-of-seat behavior rather than reduce it. But the experimental conditions imposed here seemed to insure at least some degree of success in modifying out-of-seat behavior with the timer-game.

References


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