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GOOD BEHAVIOR GAME: EFFECTS OF INDIVIDUAL CONTINGENCIES FOR GROUP CONSEQUENCES ON DISRUPTIVE BEHAVIOR IN A CLASSROOM[1]

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Out-of-seat and talking-out behaviors were studied in a regular fourth-grade class that included several "problem children". After baseline rates of the inappropriate behaviors were obtained, the class was divided into two teams "to play a game". Each out-of-seat and talking-out response by an individual child resulted in a mark being placed on the chalkboard, which meant a possible loss of privileges by all members of the student's team. In this manner a contingency was arranged for the inappropriate behavior of each child while the consequence (possible loss of privileges) of the child's behavior was shared by all members of this team as a group. The privileges were events which are available in almost every classroom, such as extra recess, first to line up for lunch, time for special projects, stars and name tags, as well as winning the game. The individual contingencies for the group consequences were successfully applied first during math period and then during reading period. The experimental analysis involved elements of both reversal and multiple baseline designs.

Researchers have recently begun to assess the effectiveness of a variety of behavioral procedures for management of disruptive classroom behavior. Some investigators have arranged token reinforcement contingencies for appropriate classroom behavior (Birnbrauer, Wolf, Kidder, and Tague, 1965; O'Leary and Becker, 1967; Wolf, Giles, and Hall, 1968). However, these token reinforcers often have been dependent upon back-up reinforcers that were unnatural in the regular classroom, such as candy and money. On the other hand, several investigators have utilized a reinforcer intrinsic to every classroom, *i.e.*, teacher attention (Zimmerman and Zimmerman, 1962; Hall and Broden, 1967; Becker, Madsen, Arnold, and Thomas, 1967; Hall, Lund, and Jackson, 1968; Thomas, Becker, and Armstrong, 1968; Madsen, Becker, and Thomas, 1968). Even so, at least one group of investigators (Hall *et al.*, 1968) encountered a teacher who apparently did not have sufficient social reinforcers in her repertoire to apply social reinforcement procedures successfully. The present study investigated the effects of a classroom behavior management technique based on reinforcers natural to the classroom, other than teacher attention. The technique was designed to reduce disruptive classroom behavior through a game involving competition for privileges available in almost every classroom. The students were divided into two teams and disruptive behavior by any member of a team resulted in possible loss of privileges for every member of his team.

METHOD

Subjects and Setting

The study was conducted in a fourth-grade classroom of 24 students. Seven of the students had been referred several times by the teacher to the school principal for such problems as out-of-seat behavior, indiscriminate noise and talking, uncooperativeness, and general classroom disruption. Further, the school principal reported that a general behavior management

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problem existed in the classroom. According to the teacher, she frequently had informed the class of the rules of good classroom behavior.

Definition of the Behavior

One and sometimes two observers visited the classroom for approximately 1 hr each Monday, Wednesday, and Friday. Observation took place during the last half of the reading period and the first half of the math period. During both of these periods, similar types of activities such as individual assignments, oral lessons and discussion, chalkboard work, and short quizzes were assigned to the students; only the subject matter varied—*i.e.*, reading or math. Recording was discontinued during the brief transition from the reading to the math period.

Observers sat at the side of the classroom and avoided eye contact and interactions both before and during recording. Observers used recording sheets similar to those used in other studies (Hall *et al.*, 1968). These were divided into rows of squares for each behavior. Each square represented an interval of 1 min. If any child in the classroom emitted the behavior, a check was made in the row assigned to the behavior, in the square representing that particular interval of time. Teacher attention to inappropriate behavior was marked in the corresponding square by an asterisk.

Inter-observer agreement was analyzed by having a second observer periodically (at least once during each of the experimental conditions) make a simultaneous but independent observation record. Agreement was measured by comparing the two records for agreement, interval by interval. The percentage of agreement between the two records was calculated (number of agreements $\times$ 100 $\div$ the total number of intervals). In addition, by indicating teacher attention to inappropriate behavior by an asterisk, intervals could be compared asterisk against check in the appropriate square to yield a percentage of agreement between the observer and the teacher during the phases that the game was in affect.

While the behavioral definitions were constructed by the experimenter, they were formulated with the help of the principal and the classroom teacher on the basis of what they considered to be the disruptive classroom behaviors.

Out-of-seat behavior was defined as leaving the seat and/or seated position during a lesson or scooting the desk without permission. Exceptions to the definition, and instances not recorded, included out-of-seat behavior that occurred when no more than four pupils signed out on the chalkboard to leave for the restroom, when pupils went one at a time to the teacher's desk during independent study assignment, and when pupils were merely changing orientation in their seat. Also, when a child left his seat to approach the teacher's desk, but then appeared to notice that someone else was already there or on his way and consequently quickly returned to his seat, the behavior was not counted. Permission was defined throughout the study as raising one's hand, being recognized by the teacher, and receiving consent from her to engage in a behavior.

Talking-out behavior was defined as talking or whispering without permission. It included, for example, talking while raising one's hand, talking to classmates, talking to the teacher, calling the teacher's name, blurting out answers, or making vocal noises such as animal-like sounds, howls, cat calls, *etc.*, all without permission.

Introduction of the Game

Immediately after the reading period and before the math period in which the system was initially used, a presentation closely following the points listed below was made by the teacher to her class. She explained that: (a) what they were about to do was a game that they would play every day during math period only. (b) The class would be divided into two teams. (She then divided the class by rows and seats of the center row.) (c) When a team or teams won the game, the team(s) would receive certain privileges. (d) There were certain rules, however, that the teams had to follow to win. (These rules were based on the behavior categories as previously defined.) (1) No one was to be out of his seat without permission (except that four pupils were allowed to leave their seats without permission in order to sign out on the chalkboard to leave for the restroom). Permission could be obtained only by raising the hand and being called on by the teacher. (2) No one was to sit on top of his desk or on any of his neighbors' desks. (3) No one was to get out of his

seat to move his desk or scoot his desk. (4) No one was to get out of his seat to talk to a neighbor. This also meant there was to be no leaning forward out of a seat to whisper. (5) No one was to get out of his seat to go to the chalkboard (except to sign out for the restroom), pencil sharpener, waste basket, drinking fountain, sink, or to the teacher without permission. (6) When the teacher was seated at her desk during study time, students could come to her desk one at a time if they had a question. (7) No one was to talk without permission. Permission could again be obtained only by raising the hand and being called on by the teacher. (8) No one was to talk while raising his hand. (9) No one was to talk or whisper to his neighbors. (10) No one was to call out the teacher's name unless he had permission to answer. (11) No one was to make vocal noises. (e) Whenever she saw anyone on a team breaking one of these rules, that team would get a mark on the chalkboard. (f) If a team had the fewest marks, or if neither team received more than five marks, the team(s) would get to (1) wear victory tags, (2) put a star by each of its members' names on the winner's chart, (3) line up first for lunch if one team won or early if both teams won, and (4) take part at the end of the day in a 30-min free time during which the team(s) would have special projects. (g) The team that lost would not get these privileges, would continue working on an assignment during the last half-hour of the day, and members would have to stay after school as usual if they did not do their work during the last half-hour period. (h) If a team or teams had not received more than 20 marks in a week, it would get the extra weekly privilege of going to recess 4 min early.

Whenever the experimental conditions were changed, point "a" was again presented to the class by the teacher with a new explanation about when the game would be played. All the above points were presented before the initial use of the program and then once again after a week-long period of achievement testing during which time the game had not been in effect. The victory tags were commercially prepared circular convention tags. Each tag was of the same color and was threaded with a uniform length of wool yarn of a contrasting color. Tags were worn around the neck. They allowed the teacher to identify easily the winners during the rest of the day. The star chart consisted of a 22-in by 28-in piece of white poster board labeled "Winners". The chart was divided into two portions designated "Team One" and "Team Two" and ruled off with team members (names) by dates (month and day). The stars were commercially manufactured with gummed backs. The special projects consisted of educational activities in the areas of science or arts which were done as a team or individually.

During the first period in which the game was applied, the teacher stipulated that the team with the fewest marks, or 10 or less, would win. The criterion for the second observed session, and for all other sessions except the last one, was set at five marks or fewer. The last session was also the last full day of school. The teacher expected the children to be very excited, and she wanted to be sure that both teams would win, since she had treats planned for the special project period. For this session the criterion was the fewest marks, or eight or less.

Experimental Phases

The experimental design included both reversal and multiple baseline phases. The data were recorded separately during the reading and math periods providing the two baselines. The study was divided into four corresponding phases. A session in one class period corresponded to a session in the other class period in that they were recorded consecutively and on the same day.

I. MATH-Baseline, READING-Baseline. For 10 sessions, the normal (baseline) rates of out-of-seat and talking-out behaviors of the class were recorded during the math and reading periods. The teacher carried out her classroom activities in her usual manner.

II. MATH-Game$_1$, READING-Baseline. During the second phase, the game was introduced during math but not during reading.

III. MATH-Reversal, READING-Game. In the third phase, the game was introduced during reading and withdrawn during math.

IV. MATH-Game$_2$, READING-Game. Lastly, the game was reintroduced in math period and remained in effect during reading period. Both periods were treated as one extended period, thus using the same initial criteria of the least number of marks or five or fewer marks.

RESULTS

Figure 1 shows the extent to which out-of-seat and talking-out behaviors were influenced by the game. These data indicate that the game had a reliable effect, since out-of-seat and talking-out behaviors changed maximally only when the game was applied. In the math and reading baselines, the median intervals scored for talking-out was approximately 96% and for out-of-seat it was approximately 82%.

When the game was applied during math period, there was a sharp decline in the scored intervals to medians of approximately 19% and 9% respectively. Meanwhile, during reading period where the game was not applied, talking-out behavior remained essentially at baseline levels and out-of-seat behavior declined somewhat.

During the third phase, the game was withdrawn during math period, and the baseline rates of the behaviors recovered; in the same phase during the reading period, the game was introduced for the first time, and a decline in the per cent of scored intervals for both behaviors resulted. Finally in the fourth phase, the game was applied during math and reading periods simultaneously. The disruptive behaviors again declined during math and continued low in reading.

Both teams almost always won the game. Of the 17 class periods that observations were made both teams won on all but three occasions, or 82% of the time.

The reliability of the measurement procedures was analyzed during the reading and math periods on six occasions. Three different reliability observers were used. Agreement for out-of-seat behavior ranged from 74% to 98% and averaged 91%. Agreement for talking-out behavior ranged from 75% to 98% and averaged 86%.

Agreement between the observer and the teacher was measured during each class period that the game was played. Agreement about the occurrence of out-of-seat behavior ranged from 61% to 100% and averaged 92%. Agreement about the occurrence of talking-out behavior ranged from 71% to 100% and averaged 85%. Thus, the levels of agreement between the observer and the teacher, and the observer and the reliability observers were approximately the same.

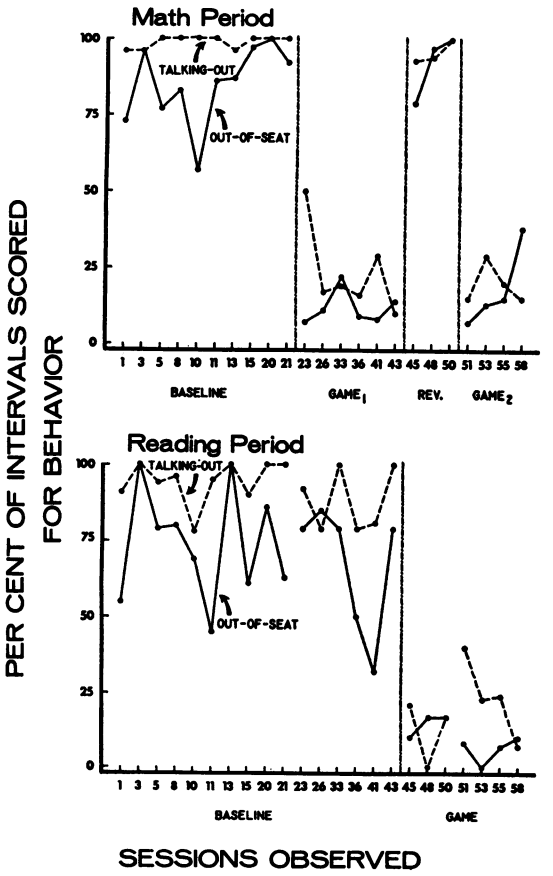

Fig. 1. Per cent of 1-min intervals scored by an observer as containing talking-out and out-of-seat behaviors occurring in a classroom of 24 fourth-grade school children during math and reading periods. In the baseline conditions the teacher attempted to manage the disruptive classroom behavior in her usual manner. During the game conditions out-of-seat and talking-out responses by a student resulted in a possible loss of privileges for the student and his team.

DISCUSSION

The game significantly and reliably modified the disruptive out-of-seat and talking-out behavior of the students. The experimental design, involving elements of both multiple baseline and reversal strategies, demonstrated that the effect could be replicated across subject matter periods and that the game had a continuing role in maintaining the reduced level of disruptive behavior. On the other hand, no analysis was carried out to determine the roles of the various components of the game. An analysis of exactly what components contributed to the effectiveness of the procedure is left to future research.

As in the present study, the subject-matter periods of the typical school day lend themselves perfectly to a multiple baseline experimental design. Simultaneous baselines of the behavior of one student or of an entire class can be obtained simultaneously in two or more subject-matter periods. The modification technique can then be introduced successively into each of the periods. If in each instance there is a change in behavior (and the behavior during the remaining baseline periods remains essentially unchanged), the investigator will have achieved a believable demonstration of the effectiveness of his technique. And he will have done so without having depended upon or required a reversal of the behavior (Baer, Wolf, and Risley, 1968).

Some problems arose which should be noted. The preparation of the special projects required the time and ingenuity of the teacher. This sometimes placed an extra burden on her, since she had also to prepare regular lessons. Another problem that was perhaps not as serious concerned teacher observation of behaviors. No signaling system was used. The teacher had to become alert to out-of-seat and talking-out behaviors in addition to continuing to conduct regular classroom activities. Spotting the target behaviors did not appear to be difficult for the teacher except when she faced the chalkboard or talked with individual students.

The greatest problem with the game involved two students who, before the study began, had been referred to the principal on a number of occasions for disruptive behavior. Both were on the same team and consistently gained a number of marks for their team. Usually they engaged in talking-out behavior. In most instances only one of the students was involved. In one session, one of these students emphatically announced that he was no longer going to play the game. Both the other children and the teacher expressed the opinion that it was not fair to penalize further an entire team because one member would not control himself. The teacher, therefore, dropped the student from the game and the marks that normally would have been imposed on the entire team were imposed just on him. During the free time, he also refused to work so he was kept after school. The same individual-consequence procedure was used for one or both students on six occasions. Each time, the marks that they had accumulated were subtracted from the team score. It is possible that the numerous peer comments that appeared to be directed toward these students may have served as social reinforcement for their disruptive behavior. It is important to note, however, that when the students were dropped from their team the observer continued to record their behavior as before.

Some reactions to the program were gathered from the children, teacher, and school officials. The program was apparently popular with students and school officials. Every professional involved in the study who directly observed the classroom situation during the game stated that in general the students seemed to enjoy playing the game. The teacher stated that some students went so far as to request that the game be played every period. After the last session in which the game was played, the teacher requested that each child briefly write whether they liked or disliked the game and why. Of the 21 comments turned in, 14 indicated that they liked the game and seven indicated that they did not. Of those who indicated that they liked the game, some made comments such as: "I like the game because I can read better when it is quiet", "I liked it. Cause it was fun", "You give us free time", "I like the morning game because it helps keep people quiet so we can work", and, "I like the team game because we win all the time". Of those who indicated that they disliked the game, some made comments such as: "No I hate being quiet", "I didn't like it because you didn't make good rules", "Because when your team loses the team that won will make fun of your team", and "Its not fair because we have the guys that talk a lot". The teacher stated that she was pleased with the method because "it was an easy program to install since it did not change any of the rules or daily activities in the classroom." All of the back-up reinforcers, with the possible exception of the victory tags, naturally occurred in the classroom setting. Only the structure of the free-time period at the end of the day changed, but it, of course, involved projects of an educational nature.

While game-like techniques are certainly not new to the classroom (Russell and Karp, 1938), an experimental analysis of their effects on behavior is unique. It may follow that an understanding of the mechanisms of the game,

e.g., peer competition, group consequences *vs.* individual consequences, *etc.*, together with research designed to enhance the significance of winning, by pairing winning with privileges, could lead to a set of effective and practical techniques of classroom behavior management based on games.

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