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USE AND ANALYSIS OF THE "GOOD BEHAVIOR GAME" TO REDUCE DISRUPTIVE CLASSROOM BEHAVIOR[1]

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A recent study reported procedures (the "good behavior game") for reducing disruptive classroom behavior. Replication of the procedures of the "good behavior game" in two classrooms showed it to be an effective technique for reducing disruptive talking and out-of-seat behavior. Further experimental analysis indicated that the effective components of the game were division of the class into teams, consequences for a team winning the game, and criteria set for winning the game. Although disruptive behavior was markedly reduced by the game, the reductions were correlated with only slightly improved accuracy of academic performance in the one classroom where academic performance was measured.

In the last few years, a number of published studies have been concerned with developing methods to reduce disruptive classroom behaviors. Most have involved the use of individual consequences for the behavior of the students in the classroom. In some of the studies, teachers were systematically trained to ignore or reprimand individual students when they were disruptive and to praise these individual students when they were engaged in non-disruptive or study behaviors (*e.g.,* Becker, Madsen, Arnold, and Thomas, 1967; Hall, Fox, Willard, Goldsmith, Emerson, Owen, Davis, and Porcia, 1971; Madsen, Becker, and Thomas, 1968; McAllister, Stachowiak, Baer, and Conderman, 1969; Thomas, Becker, and Armstrong, 1968; Ward and Baker, 1968). In some of the studies, special events and privileges, with or without the use of token procedures, were employed as individual consequences for low levels of disruptive behaviors (*e.g.,* Hall *et al.,* 1971; O'Leary, Becker, Evans, and Saudargas, 1969).

Several studies of disruptive behavior have employed group consequences for the behavior of the students in the classroom (*e.g.,* Barrish, Saunders, and Wolf, 1969; Medland and Stachnick, 1972; Schmidt and Ulrich, 1969). In these studies, whether or not an individual student in the class received a consequence was dependent upon the performance of the entire class or some subgroup of the class of which that student was a member. The procedures used in one of the studies, the study by Barrish *et al.* (1969), seemed to have a number of practical advantages for use in the classroom. In this procedure, labelled the "good behavior game", the teacher listed several rules, which stated that during certain times the children were not to be out of their seats or to talk with their classmates without permission. Then, the class was divided into two teams and labels for each team were written on the blackboard. If any member of a team talked to his classmates or left his seat without permission a mark was placed next to the team listing of which the child was a member. At the

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end of the period or the end of the day, the team with the fewer marks "won" the game and all members of that team were allowed special privileges (such as wearing victory tags, receiving a star on a chart, special projects, *etc.*). Further, if any team had fewer than a criterion number of marks it would win the game regardless of whether the other team had fewer marks. Through a series of experimental manipulations, the authors clearly showed that the good behavior game had a very powerful effect in reducing disruptive behavior. In addition, the game seemed relatively easy to implement in that the teacher was not required to attend differentially to each individual student in the class with praise and/or disapproval. Also, the behavioral recording system was easily usable by the teacher for a variety of behaviors and did not necessarily require the presence of an additional classroom observer, except for reliability determinations.

Because of these characteristics, the procedures of the good behavior game were employed when two teachers, a fifth- and a sixth-grade teacher, requested assistance in reducing disruptive behavior in their classrooms. In this investigation there were three primary questions. The first was whether the procedures of the good behavior game would be effective in reducing disruptive behavior in different classrooms. Second, if the procedures of the good behavior game were effective, what components of the rather complex procedure were resonsible for the control over disruptive behavior? Third, if the good behavior game was effective in controlling disruptive behavior, what was the effect upon the academic performances of the children?

METHOD

Subjects and Setting

Children within two classrooms, a fifth grade and a sixth grade, were observed. In the fifth-grade classroom, which contained 22 children, daily observations were initially taken during two 30-min math periods. Later in the study, daily observations were also taken during 30-min science and spelling periods, and a reading period, which varied in length from 60 to 100 min. In the sixth-grade classroom, which contained 28 children, daily observations were taken during one 30-min math period and one 30-min English period. Typically, children in both classrooms received individual assignments at which they worked during the observation periods.

Behaviors Recorded and Recording Method

Disruptive behavior. Two behaviors, regarded as disruptive by the teachers, were recorded. The first was talking behavior, which included all vocalizations emitted by a child in the absence of the teacher's permission. Whistling, laughing, whispering, crying, talking to classmates, talking to the teacher before receiving the teacher's permission, screaming, imitating sounds of cars or animals, *etc.*, were all scored as talking behavior. The second disruptive behavior, out-of-seat behavior, included irregular seating positions such as sitting with knees or feet on the seat of the chair, as well as standing or walking in the room in the absence of the teacher's permission. In addition, throwing paper airplanes, rubber bands, books, pencils, or other objects at classmates was recorded as out-of-seat behavior. Children could request permission to talk or leave their chair by raising their hand and receiving verbal acknowledgment from the teacher.

The presence or absence of disruptive behaviors was recorded in each of the 1-min intervals of the observation period. If one or more children exhibited disruptive behavior within a 1-min interval, that interval was scored as containing disruptive behavior. Thus, the recording system simply reflected whether or not talking and/or out-of-seat behavior occurred within a 1-min interval. A buzzer, which operated once a minute, signalled a change in intervals to the observer. The teacher served as the principal observer in the fifth-grade classroom. She was periodically joined by another observer to obtain a measure of inter-observer agreement. In the sixth-grade classroom, one observer pro-

vided a daily record of the behaviors described above. This observer was also periodically joined by a second observer in order to determine interobserver agreement.

The records of the teacher and observer or the two observers for disruptive behavior were compared interval-by-interval for agreement. Reliability was obtained by dividing the number of intervals in which both observers agreed that a behavior occurred by the number of intervals in which either observer scored the occurrence of a behavior. The mean agreement over both classrooms was 79% for talking behavior (range 50 to 100%) and was 84% for out-of-seat behavior (range 0 to 100%).

Academic performance. Individual student performances in the two separate math periods for the fifth-grade classroom were recorded. During the math periods, the students were given individual assignments. After completing an assignment, the student handed his paper to a grader located at a table adjacent to the teacher's desk at the front of the classroom. The grader recorded the time taken for the student to complete his assignment, graded and recorded the correct and total number of problems worked, and handed the paper back to the student. The student, if he chose, could work again the problems that he had missed on the first check and hand his paper to the grader for a second check. The grader then followed the same procedures as for the first check. During each math session, a student was allowed three checks by the grader. At the end of the math session (30 min), all papers that had not been scored by the grader were collected and graded for the first time.

An assessment of the reliability of the grading procedures was conducted periodically by arranging independent scoring of the papers. The observers agreed on the correctness or incorrectness of each answer on all occasions.

Procedures

Use of the good behavior game. Before recording disruptive behaviors, a 15-min meeting was arranged with each teacher. During the meeting the following was discussed: the definitions of disruptive behavior, the system of recording disruptive behavior, and the procedures of the good behavior game. Any questions the teachers had were answered. There were no explicit behavioral consequences for the teachers' participation in the study, except for the possibility of reducing disruptive behavior in the classroom.

After a period of baseline observation, each teacher announced that the class was going to play a "good behavior game". The children in each classroom were then divided into two teams, each containing approximately one-half of the children in the class. For convenience, Team 1 consisted of the children sitting in two rows of chairs located on the east side of the classroom. Team 2 consisted of the children sitting in the two rows of chairs positioned on the west side of the classroom. A list of the children participating as members of Team 1 and Team 2 was written on the blackboard. The teacher then described the rules of the game and stated that each instance of rule violation would result in the offending team accumulating a mark on the classroom blackboard. When the good behavior game was first introduced, the rules were also written on the classroom blackboard: (1) no talking without permission; (2) no leaving a seated position without permission; (3) no throwing objects in the classroom without permission. A child could obtain permission to engage in a behavior by raising his hand and receiving consent from the teacher. After describing the rules of the good behavior game, the teacher outlined the contingencies related to the game. She stated that the team with the fewer number of marks at the end of the period would be the "winning" team. However, if neither team received more than five marks (or four marks in the sixth-grade class) then both teams would be "winning" teams. Also, in the event of a tie (*i.e.,* both teams receiving the same number of marks) both teams would be "winning" teams. The tie contingency was never employed because on no occasion did a tie occur

when more than the criterion number of marks was scored. Each member of the winning team(s) was allowed to leave school 10 min early at the end of the day. Members of the losing team were required to remain in the classroom working on assignments until the regular dismissal time for the school.

To evaluate the effectiveness of the good behavior game, baseline recordings of disruptive behavior were taken during several observation periods in each classroom. Then, the procedures of the game were systematically introduced and removed from one or more of the observation periods within each classroom. When the good behavior game was played in only one period in the fifth-grade class, if neither team scored more than five marks then both teams would win the game. If the game was played in more than one period, the criterion number of marks for both teams "winning" was raised to 10 marks. Thus, if the game was played in either two math periods or in two math periods and any other period (*e.g.*, science, reading, social studies) the criterion number of marks for both teams to "win" remained at 10. In the sixth-grade class, the criterion number of marks for both teams to "win" was set at four when the game was played in only one period (math or English). When the game was played in two periods (math and English) the criterion was raised to eight.

Analysis of components of the good behavior game. To evaluate which components of the good behavior game were functional in controlling disruptive behavior, several experimental manipulations were performed in the sixth-grade classroom. These manipulations involved changing various components of the game to determine the effects upon disruptive behavior. In one set of manipulations, the consequences for winning the game were eliminated. The good behavior game was played in one of the two observation periods; however, the winning team (or teams) was not allowed to leave school 10 min early. This change was announced to the children before these procedures were initiated. In all other respects, the game procedure remained the same (the teacher announced the game would be played, placed marks on the blackboard for the disruptive behaviors, and announced which team, or teams, won at the end of the period).

In a second set of manipulations, the maximum number of marks at or below which a team would win was changed. During this set of manipulations the game was played in both observation periods. Initially, if either team received fewer than eight marks, that team would win, whether or not they had more marks than the other team. This maximum number was changed to four marks, then back to eight, and then to four again. In each of these manipulations, the winning team (or teams) was allowed to leave school 10 min early.

In a third set of manipulations, "feedback" to the children regarding the occurrence of disruptive behavior was eliminated. In this manipulation, marks for disruptive behavior were no longer placed on the blackboard where the children could see them. Instead, the teacher placed the marks on a piece of paper on his desk, out of the children's sight (screened by a row of books). During this set of manipulations, the game was played in both observation periods, and the maximum number of marks at or below which a team would win was set at four. In all other respects the game procedure remained the same and a winning team (or teams) was allowed to leave school 10 min early.

In a fourth manipulation, the class was not divided into two teams, but instead was treated as a whole. The game procedure was in effect for both observation periods, but now if the total class received eight or fewer marks over both observational periods the entire class would win and was allowed to leave school 10 min early. Table 1 shows the sequence of these conditions and the number of days of each condition for the sixth-grade classroom.

Academic performance. Two math periods occurred each day in the fifth-grade classroom, one in the morning and one in the afternoon.

Table 1

Sequence of conditions in the sixth-grade classroom to analyze the components of the good behavior game. The numbers in parentheses refer to the criterion number of marks at or below which a team would "win" the game.

Math	*English*	*No. of Sessions*
Baseline	Game (4) no consequences	5
Game (4) no consequences	Baseline	5
Game (8)	Game	5
Game (4)	Game	6
Game (8)	Game	3
Game (4)	Game	4
Game (4), without feedback	Game, without feedback	5
Baseline	Baseline	6
Game (4), without feedback	Game, without feedback	4
Baseline	Baseline	1
Game (8), no teams	Game, no teams	5

Daily math assignments, drawn from a fifth-grade Addison-Wesley text book, were divided into two separate assignments of equal length. The first assignment included all odd-numbered problems beginning with the first problem. The second assignment included all even-numbered problems beginning with the second problem. For each student, one of the assignments was given in the morning math session and the other was given in the afternoon math session. The assignments were divided in this way to provide two assignments each day of approximately equal difficulty for purposes of experimental comparisons within days. If experimental comparisons were made over different days, the students might be working on problems of widely different difficulty, which could possibly obscure the effects of the experimental manipulations.

Before the morning math period, the teacher instructed the students regarding that day's assignment by a brief lecture, including demonstrations of how to work sample problems similar to problems the students were required to complete during both math periods. After discussion of the assignment, the teacher passed out answer sheets numbered to indicate which problems the students were to work during that math period. To reduce the probability of copying during math sessions and to counterbalance the assignments given to students during each math period, the teacher handed out the answer sheets in a checkerboard fashion, alternating the first and second assignments for students in each row. In this way, a student would have a different assignment than the student sitting directly in front, behind or to the right or left of him. When each student had received an answer sheet, the teacher announced that the students could begin working on their assignments. Papers were graded as described in the section on behavioral recording.

Measures of student performance were taken during a baseline period of 16 days in which the assignments were handed out and graded, but the procedures of the good behavior game were not in effect. To evaluate the effects of reducing disruptive behavior on math performance, the procedures of the good behavior game were put into effect during the afternoon math period only for five days. Next, the procedures of the good behavior game were removed from the afternoon math period and were employed in the morning math period for five days.

RESULTS

Figure 1 shows the mean daily percentage of 1-min intervals scored for disruptive talking and out-of-seat behavior in the fifth-grade classroom over the first conditions of the study. Each bar represents a mean calculated over five days. The percentage of intervals in which talking behavior occurred was at or near 100% for both math periods during baseline (first sets of bars). The percentage of occurrence of out-of-seat behavior was above 50% for both math periods during this condition. Next, the good behavior game was introduced during the second math period and disruptive behavior immediately declined. Disruptive behavior remained near base-

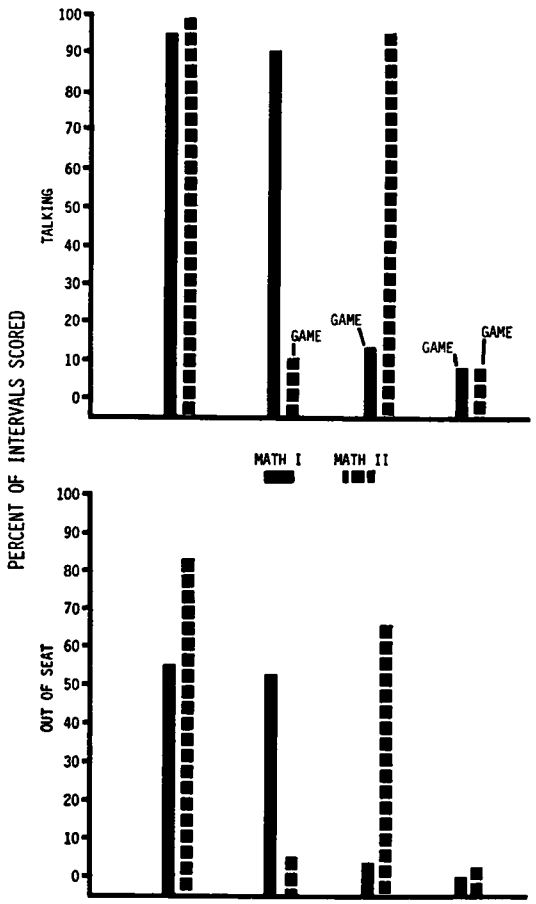

Fig. 1. Mean daily percentage of intervals scored for talking and out-of-seat behavior during two daily math periods in the fifth-grade classroom under baseline and game conditions.

line level in the other math period. The game was removed from the second math period and introduced into the first math period. With the game procedure in effect, disruptive behavior declined in the first math period. Conversely, with the game procedure not in effect, disruptive behavior increased in the second math period. Disruptive behavior declined in the second math period and was maintained at a low level in the first math period when the game was played in both periods.

Disruptive behavior was similarly reduced when the game was introduced during reading, spelling, and science periods in the fifth-grade classroom. At the end of this sequence of conditions for the fifth-grade classroom, the game was being played in a total of five academic periods (*e.g.*, both math periods, science, spelling, and reading) which constituted 3 to 4 hr of the school day. The game was left in effect during these five periods for 100 school days. Over the entire 100 days, disruptive behavior remained low during the five periods (the average percentage of intervals scored for talking per day was 8%, and for out-of-seat was 2%). Further, both teams won the game on 121 days out of the 133 days that the game conditions were in effect.

Figure 2 shows the mean daily percentages of 1-min intervals scored for disruptive behavior in the sixth-grade classroom over the initial conditions of the study. Each bar represents a daily mean calculated over five to seven days. As in the fifth-grade classroom, disruptive behavior was low when the game was played dur-

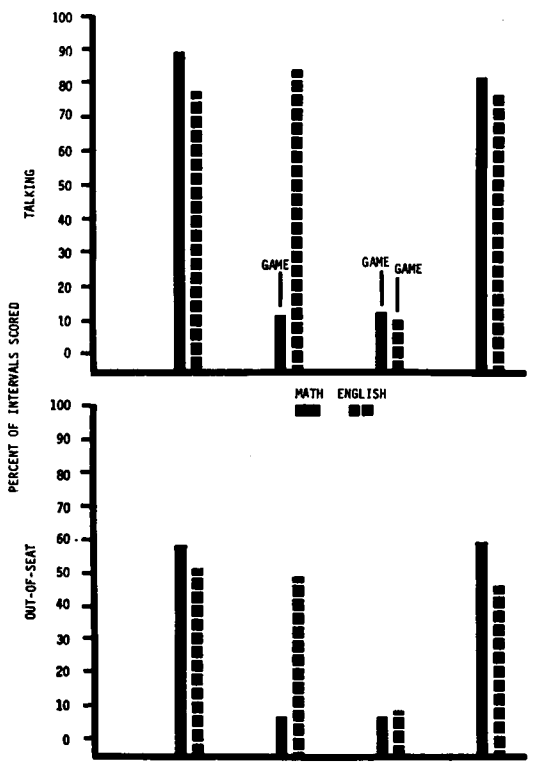

Fig. 2. Mean daily percentage of intervals scored for talking and out-of-seat behavior during daily math and English periods in the sixth-grade classroom under baseline and game conditions.

ing an academic period and was high when the game was not played.

The power of the game in the absence of the early dismissal consequence to reduce disruptive behavior was next examined, as shown in Figure 3. Initially, the game was not played in either math or English periods (the same data are plotted as in the fourth condition of Figure 2). In the next condition, the game was introduced into the English period but the consequence (*i.e.*, the 10-min early dismissal from school) was not provided for the winning team(s). Talking and out-of-seat behaviors in English declined as compared to the previous baseline condition and occurred at roughly half the level scored in math period. However, the reduction in the per cent of intervals scored in English was not as marked in this condition as compared to earlier conditions (see Figure 2) when the game had been backed up by the early dismissal consequence. The game (without the early dismissal consequence) was then withdrawn from the English period and was placed in the math period. As compared to the previous condition, disruptive behavior declined in the math period and increased in the English period. As had been the case for English in the previous condition, the reduction of disruptive behavior in math was not as great when the game was played without consequences as when the game was played with the consequences (see Figure 2).

The criterion number of marks allowing both teams to win the game was investigated in the next set of conditions, as shown in Figure 4. The

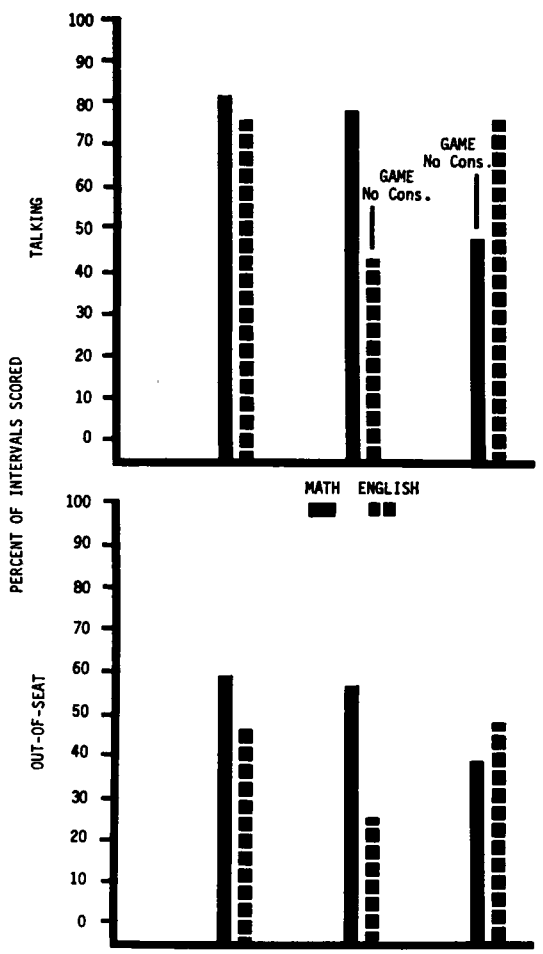

Fig. 3. Mean daily percentage of intervals scored for talking and out-of-seat behavior during math and English periods in the sixth-grade classroom under baseline and game (no consequences) conditions.

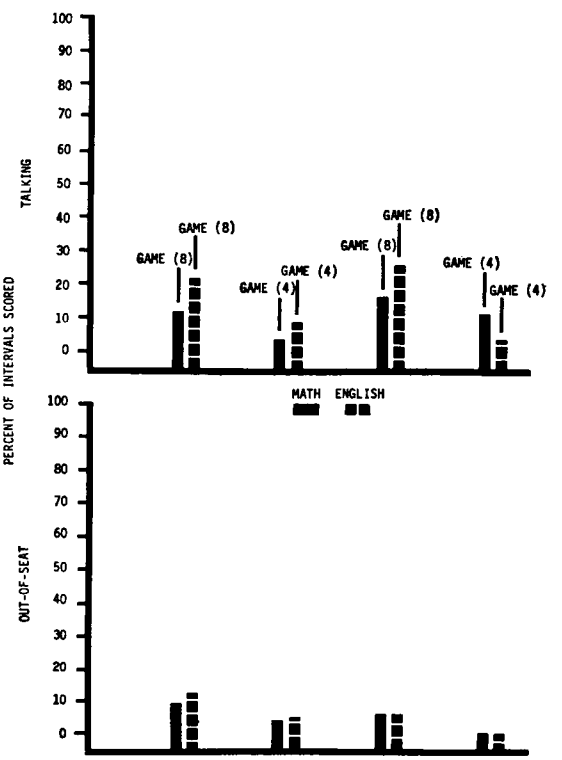

Fig. 4. Mean daily percentage of intervals scored for talking and out-of-seat behavior during daily math and English periods in the sixth-grade classroom under game conditions when the criterion number of marks for both teams to "win" was set at either four or eight.

numbers in parentheses indicate the criterion number of marks at or below which a team was assured of winning the game for each condition. In the first condition shown, the game, accompanied by the early dismissal consequence, was in effect for both math and English and disruptive behavior was at a low level in both periods. In this condition, neither team could score more than eight marks if both teams were to win the game. With the good behavior game still in effect for both periods, the criterion number of marks at or below which a team could score and still be assured of winning was reduced to four. The percentage of intervals in which disruptive behavior was scored decreased to about 50% of the percentage of intervals scored in the previous condition. In the next condition, the criterion number of marks was again set at eight. An increase in the level of disruptive behavior occurred. Next, the criterion number of marks was again reduced to four. Disruptive behavior decreased to a percentage of intervals scored similar to the other condition when the criterion was also set at four marks.

The effect of feedback (marks on the blackboard indicating the number of disruptive behaviors scored for each team) was investigated in the next set of conditions as shown in Figure 5. The data shown for the first condition in Figure 5 are the same as those plotted for the last condition in Figure 4, where the game was played in both math and English with feedback and four marks (indicated by the four in parentheses) was the criterion. When the feedback system was eliminated in the next condition (no feedback) the occurrence of disruptive behavior did not change appreciably. In the next condition, the game was removed from both periods. Disruptive behavior increased to near baseline levels. The game without feedback was then reinstated for both periods in the next condition with the criterion number of marks set at four. Disruptive behavior was reduced to a level similar to that achieved when the game had been played with feedback (see Figure 4).

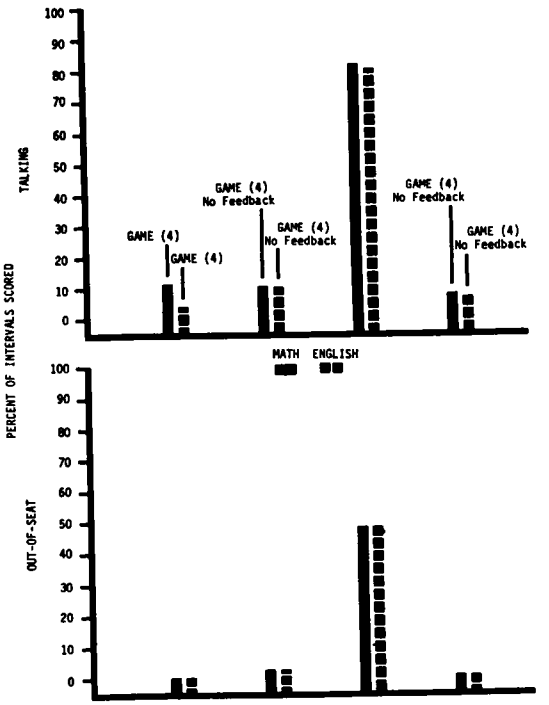

Fig. 5. Mean daily percentage of intervals scored for talking and out-of-seat behavior during daily math and English periods in the sixth-grade classroom under game, game with no feedback, and baseline conditions.

The effectiveness of the game without the team division was next investigated, as shown in Figure 6. In the first condition shown (a one-day period), the game was removed from both periods. Disruptive behavior returned to baseline levels. The game, with feedback, was then reinstated for both periods in the next condition, but each disruptive behavior was scored for the whole class, rather than for the two teams separately, and the criterion number of marks was eight for the entire class. During this condition, disruptive behavior was higher in the English period and was at about the same level in math as compared to disruptive behavior when the game had been played with teams (see Figures 4 and 5).

Because of the no-team arrangement, if nine or more marks were recorded on the blackboard, no members of the class were allowed to leave school early. This may account for the increase in disruptive behavior during the English

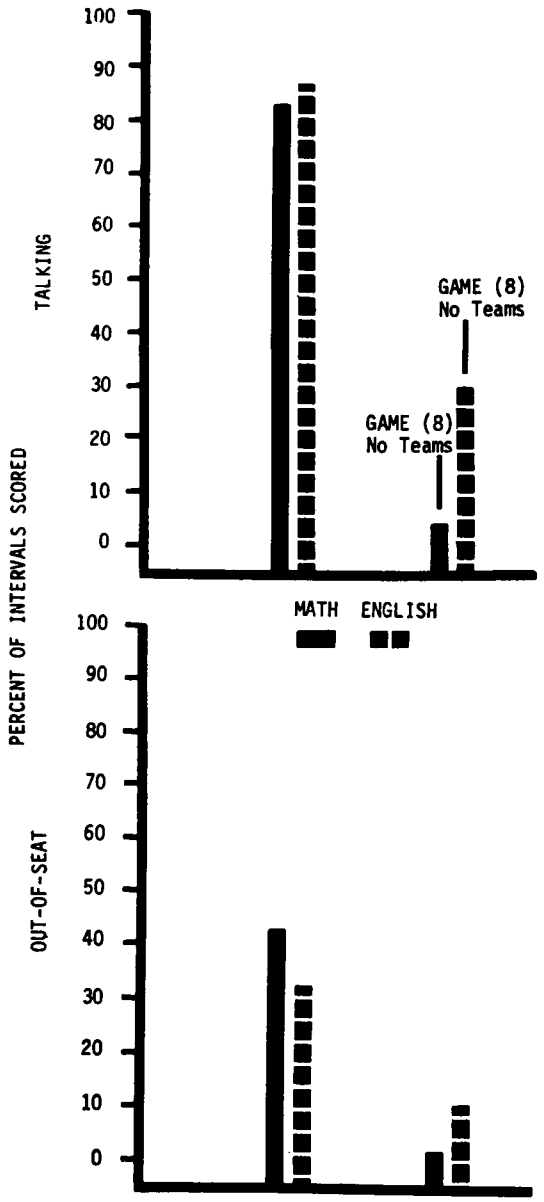

Fig. 6. Mean daily percentage of intervals scored for talking and out-of-seat behavior during daily math and English periods in the sixth-grade classroom under baseline and game with no-teams conditions.

period, since this period occurred later in the day than the math period. On two days of this condition, a ninth mark was recorded on the blackboard during the English period, and on one day the ninth mark was recorded during the last part of that day's math period.

In the sixth-grade classroom when the basic game components were employed, both teams typically won the game. When the classroom was divided into teams and the 10-min early dismissal consequence was provided for winning the game, both teams won the game on 32 of the 37 days.

Figure 7 shows the effects of the good behavior game on math performance during the two math periods in the fifth-grade classroom. The measures shown are the mean daily percent-

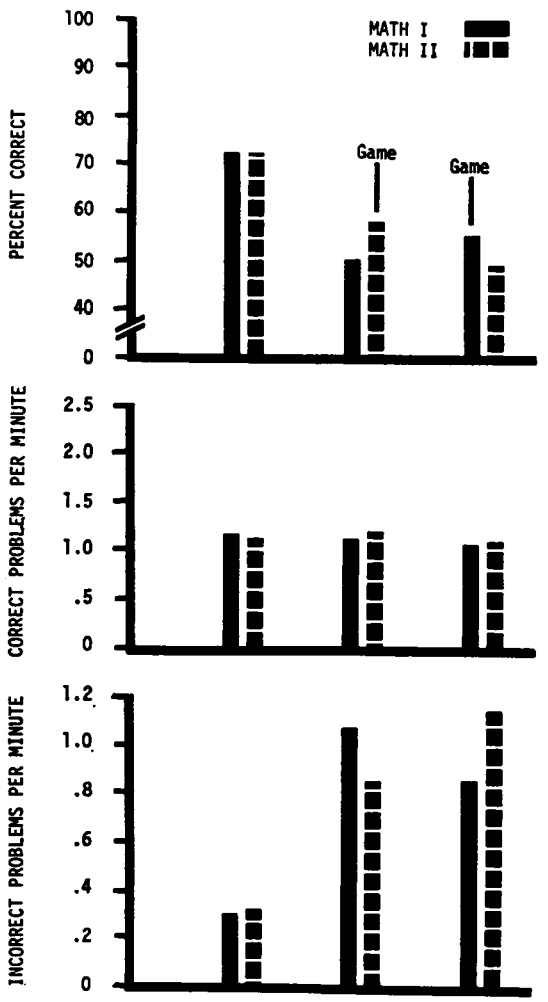

Fig. 7. Mean daily percentage correct, and rate of correct and incorrect math problems completed by children in the fifth-grade classroom during two daily math periods. The measures shown are for the first time papers were graded under baseline and game conditions.

ages of correct problems completed, and the mean daily rate of correct and incorrect problems completed the first time each student had his assignment graded. During the 16-day baseline period when the good behavior game was not played (the first sets of bars) performance in the first math period was about the same as performance in the second math period. The last five days of this baseline condition were the same as the five days that also served as an initial baseline for disruptive behavior (see Figure 1). When the good behavior game was played in the second math period for five days during the next condition, disruptive behavior was reduced in that period (see second sets of bars in Figure 1) and, as shown in Figure 7, academic performance in that math period was somewhat superior to that in the other math period where disruptive behavior remained high. During the second math period, as compared to the first math period, accuracy was higher, rate correct was about the same, and rate incorrect was lower. When the procedures of the good behavior game were next removed from the second math period and placed in the first math period for five days, disruptive behavior increased in the second math period and was reduced in the first math period (see third sets of bars in Figure 1). As shown in Figure 7, math performance in the first math period was now somewhat superior to that in the second math period. In the first math period, as compared to the second math period, accuracy was higher, rate correct was about the same, and rate incorrect was lower.

DISCUSSION

Replications of the Barrish *et al.* (1969) study were completed in two classrooms. In these replications, team competition procedures (the good behavior game) involving consequences for an entire team were successful in reducing disruptive out-of-seat and talking behavior. In addition, several components of the game were analyzed in terms of their importance for the reduction of disruptive behavior. Each of the following contributed, in varying degrees, to the game's control over disruptive behavior: permission to leave school early (granted to the winning team or teams), the number of marks chosen as a criterion for both teams to win, and the division of students into teams. Whether or not students were provided direct feedback (marks on the blackboard) regarding the occurrence of disruptive behavior did not seem to affect the occurrence of disruptive behavior in the presence of the game.

Removing permission to leave school early as a consequence for winning the game reduced the game's effectiveness in suppressing disruptive behavior, but did not render the game totally ineffective. Disruptive behavior occurred less frequently in the presence of the game without the early-to-leave-school consequence than in the total absence of the game. The finding is similar to that obtained by Medland and Stachnik (1972), who used a variation of the good behavior game. In this study, classroom rules, a light feedback system, and group consequences were used to reduce disruptive behavior. Subsequently, they found that rules and the feedback system without the consequences also were effective in reducing disruptive behavior. In the present study, the ability of the game without consequences to exert some control over disruptive behavior was possibly due to several factors. First, the teacher's announcement of the winning team could have served as a mild reinforcer for one team scoring fewer marks than the other team. Second, in this condition it was observed that students on the "winning" team occasionally harassed students on the "losing" team with statements such as: "My team beat yours again today", "Can't your team do anything right?", "We can still win even if we don't get to go home early", *etc.* The opportunity to comment to members of the losing team may have reinforced certain students to maintain a low rate of disruptive behavior even when winning did not result in permission to leave school early.

Typically, students scored as many marks for disruptive behavior as the criterion for both teams winning allowed. Further, when the class played the "good behavior game", there was a higher probability of students emitting disruptive behaviors when their team score was equal to or lower than the criterion for both teams to win than when their team score was higher than the criterion for both teams to win.

Dividing the classroom into teams appeared to prevent a rapid increase in disruptive behavior following the occurrence of the ninth mark in the no-team condition. In the team condition, if a team scored more than the criterion number of marks that ensured victory, it was still possible to win by waiting for the other team to score, at least, an equal number of marks. In order to have the best chance at winning the game, a team with more than the criterion number of marks must have exhibited no disruptive behavior until the opposing team accumulated more marks than their total. Thus, disruptive behavior seemed to remain under control in the team condition even though one team had scored more than the criterion. However, scoring more than the criterion number of marks in the no-team condition eliminated the possibility of winning the game for the whole classroom. With victory and its concomitant reinforcers unattainable, disruptive behavior occurred at a higher rate.

Experimental analysis of feedback showed it to be a relatively unimportant component of the game when the game was in effect with consequences. However, feedback had been in effect for a relatively long period of time before experimental evaluation of its function. The long history of feedback as a component of the game may have affected the subsequent evaluation of feedback as a functional game component. When the rate of disruptive behavior was higher (in the absence of the consequence permitting students to leave school early) feedback could have been partially responsible for this observed reduction in disruptive behavior, although this was not experimentally analyzed. Also, in the no-team condition, the ninth mark made on the blackboard set the occasion for a high rate of disruptive behavior. Because the ninth mark seemed to set the occasion for a high rate of disruptive behavior in the no-team condition, the elimination of feedback in this condition may have been sufficient to maintain a low rate of disruptive behavior, although this was not experimentally investigated. Perhaps, students unaware of the number of accumulated marks would have been less likely to engage in disruptive behavior in the absence of the team component of the game.

A low rate of disruptive behavior was maintained in the sixth-grade classroom whenever the game was in effect. With the exception of the last two weeks of school, the good behavior game maintained low rates of disruptive talking and out-of-seat behavior throughout the academic year in the fifth-grade classroom. In the fifth-grade classroom, three students, two of whom had been referred to the principal for disruptive behavior on several occasions before the study began, announced during a morning math session in the next-to-last week of school that they were no longer going to play the game. During the academic sessions in which the good behavior game was played that day, they collected a large number of marks for their respective teams. (Two of the three students who had announced that they would no longer play the game were responsible for over 80% of the losing team's marks). The next day, after consulting with the authors, the teacher instructed the class that the losing team would remain 5 min after school for each mark over the criterion (10 marks) that the team received. On the first and only day this procedure was in effect, the losing team spent 90 min after school. The teacher considered it unfair for an entire team to remain after school when only a few students were primarily responsible for the high rate of disruptive behavior. On the following day, a new procedure was initiated. A new team was created by placing the three problem students on a third team, while keeping the remainder of the original two teams intact. Similar to the

previous day, the teacher instructed the three teams that a losing team (or teams, since it was possible that two teams could lose) would remain 5 min after school for each mark scored over the criterion. This procedure was in effect for five days. The "third" team lost the game the first day this procedure was in effect and remained after school for 15 min. However, none of the teams lost the game for the next four days and when, after the fifth day of this condition, the students on the third team asked to be returned to their former teams, the teacher allowed them to do so. On the final two days that class was held, both teams won the game.

Permitting students to leave school 10 min early contingent on low level occurrence of disruptive behavior proved to be a very effective consequence. Both the teachers and principal of the school agreed that it was an extremely convenient and efficient event to exchange for students exhibiting a high degree of control over their disruptive behavior. However, allowing students to leave school early may be undesirable in some classroom settings. For example, students who earn the right to leave school early may run and yell in the halls, disturbing the progress of another classroom, and alternative effective consequences for the elimination of disruptive behavior may be needed, such as those used in the study by Barrish *et al.* (1969).

Several previous studies have systematically examined the possible relationship between students' performances on academic material and other classroom behaviors. In studies by Ferritor, Buckholdt, Hamblin, and Smith (1972), Kirby and Shields (1972), and Sulzer, Hunt, Ashby, Koniarski, and Krams (1971), consequences were provided for correct responses to academic materials producing somewhat improved academic performances. Sulzer *et al.* (1971) and Kirby and Shields (1972) also found that amount of time students spent attending to academic tasks (defined in part by the absence of disruptive behavior) increased. However, in the study by Ferritor *et al.* (1972) improvement in academic performance was not correlated with increases in time students attended to academic materials or with reduced levels of classroom disruptive behavior. In the studies by Sulzer *et al.* (1971) and Ferritor *et al.* (1972), consequences were also provided for appropriate attending and study behavior of students. Although these consequences did appear to increase attending and study behaviors somewhat, there was little or no improvement in the accuracy or rate with which students completed academic assignments. In the present study, reduction of disruptive behavior seemed to produce somewhat higher accuracy. However, the improved accuracy was a result of a lower rate of incorrectly answered problems, rather than a higher rate of correctly answered problems. Thus, the combined results of previous studies and the present one have not indicated a consistent or strong relationship between performance on academic materials and attention, study, and disruptive behaviors.

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