**POSITIVE PEER PRESSURE: THE EFFECTS OF PEER
MONITORING ON CHILDREN'S DISRUPTIVE
BEHAVIOR**

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Classroom peers can serve as powerful sources of reinforcement in increasing or maintaining both the positive and negative behaviors of their classmates. In two experiments, we examined the effectiveness of a peer-monitored token system on reducing disruption and nonparticipation during a transition period of a kindergarten class for behaviorally impaired children. Additionally, the effect of providing and subsequently withholding corrective feedback to peer mediators on the accuracy of their point awards was evaluated. Results in Experiment 1 suggest that both teacher- and peer-monitored interventions were successful in decreasing disruption and increasing participation of monitored peers. Experiment 2 further demonstrated that peer monitors could successfully initiate the token system without prior adult implementation. Analysis of the point awards in both experiments indicates that peer monitors consistently awarded points that were earned. However, when corrective feedback was withdrawn the peer monitors frequently awarded points that were not earned, i.e., they rarely withheld points for undesirable behavior. Even so, the monitored peers' disruptive behavior was maintained at low rates.

DESCRIPTORS: peers, token economy, reinforcement, disruptive behavior, children

Classroom peers frequently exert a powerful influence on one another's behavior. They may effectively prompt and reinforce desirable behaviors such as social skills (e.g., Cooke & Apolloni, 1976; Hendrickson, Strain, Tremblay, & Shores, 1982; Maloney, Harper, Braukmann, Fixsen, Phillips, & Wolf, 1976; Strain, Shores, & Kerr, 1976; Strain, Shores, & Timm, 1977) and academic skills (e.g., Egel, Richman, & Koegel, 1981; Dineen, Clark, & Risley, 1977; Parsons & Heward, 1979; Robertson, DeReus, & Drabman, 1976; Trovato & Bucher, 1980). Conversely, classmates may also reinforce behaviors that are considered undesirable,

such as disruption (e.g., Solomon & Wahler, 1973), noncompliance, fighting, or complaining (e.g., Christy, 1975). Given the powerful influence of peers, researchers are examining the ways in which peers may serve as intervention agents for producing and maintaining desirable classroom behaviors (cf. Strain, 1981a).

Recent studies suggest that the use of peers as intervention agents, in some cases, may be more advantageous than the use of teachers. As noted by Strain, Cooke, and Apolloni (1976), peers may be able to monitor and provide consequences for a child's behavior more continuously and contingently than the teacher, whose attention is divided across an entire class of students. Furthermore, peers may be able to do so in more settings than the teacher (e.g., recess, lunchroom, restroom, hallways). Finally, the mere presence of a peer who has served as an intervention agent may cue classmates to engage in desired behavior and may facilitate maintenance of their behavior following termination of the intervention program.

Researchers have recently examined the efficacy of peer-mediated interventions. Results clearly sug-

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gest that peer-mediated interventions may be as effective as adult or teacher-mediated programs (e.g., Greenwood, Sloane, & Baskin, 1974; Phillips, Phillips, Wolf, & Fixsen, 1973; Ringer, 1973); in at least one case, researchers have documented that the peer-mediated intervention is preferred by the target children. Phillips et al. (1973), who investigated several managerial styles in a group treatment home for adolescents, found that youths preferred a peer-managed intervention program over adult-managed programs; both program styles were equally effective in ensuring that the youths completed their daily assigned tasks.

In addition to demonstrating the effectiveness of peer-mediated interventions, several studies have documented concurrent academic or social gains by children who served as the intervention agents (e.g., Cooke & Apolloni, 1976; Dineen et al., 1977; Parsons & Heward, 1979). Dineen et al. demonstrated that peers who participated as spelling tutors increased their spelling accuracy almost as much as the children whom they tutored. In a few studies, gains in managerial skills made by the peers trained as managers or tutors were also demonstrated. For instance, Greenwood et al. (1974) showed that peers, trained to manage the academic behavior of small groups of classmates, learned to give instructions, to praise appropriate behavior, to provide corrective feedback and to levy consequences in the form of point awards-withdrawals. Thus, peer-mediated intervention programs present clear benefits both for the children receiving intervention and the children providing intervention.

Peer-monitored programs have been conducted in a variety of settings with a variety of groups. Most have been conducted in classroom settings; typically the peer who intervenes is either more skilled (e.g., Egel et al., 1981; Greenwood et al., 1974), or older (e.g., Johnson & Bailey, 1974; Robertson et al., 1976; Trovato & Bucher, 1980), than the peer receiving intervention. Very few researchers have examined the use of very young children or handicapped children as mediators of peer behavior change (e.g., Hendrickson et al., 1982; Strain et al., 1976). Furthermore, few re-

searchers have examined the competency with which young or handicapped children function as peer mediators.

Hendrickson et al. (1982) demonstrated that a behaviorally handicapped peer could be used as a peer confederate to intervene with more severely, behaviorally handicapped classmates of the same age. In this study, the 7-year-old peer confederate was prompted by an experimenter to initiate to one of the three target classmates approximately four times per minute and then was praised by the experimenter for each initiation. The peer confederate's prompted initiations were successful in promoting positive responses from his behaviorally handicapped classmates. Although Hendrickson et al. demonstrated that a handicapped peer, who typically engaged in negative behaviors, could function as an effective intervention agent, they did not demonstrate that the peer could function independently of extensive experimenter prompts and reinforcement. In fact, results suggested that the peer confederate and his three classmates did not generalize intervention behavior to a generalization setting; initiations and positive responses occurred only after the experimenter began prompting the peer confederate every minute to initiate.

Additional research is required to determine the conditions under which peers can operate independently as intervention agents and the consistency and accuracy with which they will perform their intervention duties. Greenwood et al. (1974) demonstrated that training in management skills was required before peers provided praise and appropriate point consequences. If extensive training or supervision is required by the teacher to ensure that peer-mediated programs are effective, then the cost of such programs must be weighed in considering their continued use.

This study was designed to determine the effectiveness with which kindergarten-aged children with serious behavior and learning problems implemented and responded to a peer-managed token program. In addition, we assessed the accuracy with which the peer monitors awarded points for participation and withheld points for disruption during a daily transition and cleanup activity.

EXPERIMENT 1

METHOD

Children and Setting

The experiment was conducted during a remedial kindergarten class at the Edna A. Hill Child Development Laboratory at the University of Kansas. The class contained eight children, ranging in age from 5 to 7, who had been referred by parents or public school personnel for behavior management and academic assistance. All children exhibited behaviors that had interfered with their performance in their regular kindergarten classroom. Referral problems ranged from shyness to oppositional and disruptive behaviors. The entire class participated in all phases of the study; however, observational data were collected only with three children, C₁, C₂, C₃, who had been identified by the classroom teacher as the most disruptive during transitions. Checklist ratings were obtained with the remaining five children. C₁ exhibited a severe language delay and oppositional behavior, and received daily medication for grand mal seizures. C₂, who had repeated kindergarten twice, also exhibited a serious language delay and a high rate of oppositional behavior. C₃ demonstrated developmental delays and noncompliant behavior. The remaining five children were similar in general functioning to the three primary target children; however, their most disruptive times of the day were not necessarily transition periods.

The study was conducted Mondays through Thursdays in the kindergarten classroom, and in the hallway and bathrooms located near the classroom. Data were collected during a transition period in which children cleaned up the classroom learning centers, used the bathroom, and then waited in the classroom on individual mats for a large-group activity to begin. The transition period typically averaged 9.5 minutes in length, but could range from 7 to 14 minutes. One teacher was present throughout the transition.

During intervention conditions, C₁, C₂, and C₃ participated daily in a brief (1–2 minute) training session in the hallway outside the classroom.

Behaviors

The target children's performance was assessed throughout the transition period by trained observers who used a 5-second continuous interval observation code. In addition, all students were rated individually by the observers at the end of the transition period. A checklist which rated each of the eight children's performance as acceptable or unacceptable during each of the transition activities—cleanup time, bathroom time, and the waiting time—was used. Teacher statements were tape-recorded during the observation period and scored later.

Continuous coding. Child behaviors recorded with the 5-second interval code were defined as follows:

1. *Participation* was scored if the child was engaged in the three transition activities. The behaviors included picking up materials, putting them in bins or on shelves, and looking for materials to pick up. Participation was also scored if the child was walking to the restroom, directing other children to the restroom, putting out the mats and materials for large group, sharing a book in the waiting area, or sitting quietly in the waiting area for the teacher to begin large group.

2. *Disruption* was scored when a child broke a classroom rule. Disruptive behaviors included noncompliance with teacher instructions, continued use of learning center materials, verbal negatives, running, shouting, fighting, throwing, or misusing any classroom materials.

The following teacher behaviors were scored from daily tape recordings:

3. *Prompts* were scored whenever the teacher directed the target child, or a group of children to participate appropriately in the transition period, or to cease inappropriate or disruptive behavior. The prompt could be task or nontask related (e.g., "John, put that game on the shelf," "Stop fighting!").

4. *Praise* was scored whenever the teacher commented favorably on a child's performance during the transition period (e.g., "I like the way you're sitting," "Team Number One's center is clean!").

Rating scale. Performance measures also were

obtained on the five remaining classmates, P₇ through P₁₁, and on the three target children. All students were rated on a checklist for acceptable performance during each of the three transition activities. These ratings were collected for two reasons: (a) to assess the acceptability of the five non-target children's performance during the three transition activities, and (b) to determine the correspondence between the observers' ratings and the point awards delivered during the teacher-monitored and peer-monitored conditions. Checklist data were not collected during the first baseline, but were collected during the teacher-monitored, the reversal, and the peer-monitored conditions. Child performance was defined in a checklist as follows:

1. Cleanup responsibilities. A point was scored if the child helped to clean up the assigned area without fighting, being disruptive, or leaving the classroom.

2. Bathroom responsibilities. A point was scored if the child walked to the restroom, used it within 3 minutes, and walked directly back to the classroom.

3. Waiting responsibilities. A point was scored if the child picked out a book, sat on a mat without disturbing peers, and returned the book when requested by the teacher.

Checklist ratings provided a stringent assessment of performance; one infraction of classroom rules during a session produced a rating of unacceptable for the transition activity in which it occurred. Because ratings were based on the three transition activities, children could receive a rating of 0%, 33%, 67%, or 100% for a given session.

During approximately 20% of the sessions a second observer (sometimes the first author) simultaneously and independently observed and recorded behaviors exhibited by C₁, C₂, and C₃. Individual reliability observations were scheduled at least once during each condition with each child. Occurrence and nonoccurrence agreements were computed separately. Interobserver agreement was calculated by dividing the sum of occurrence (or nonoccurrence) by the sum of observer agreements plus disagreements and multiplying by 100. Condition means for the occurrence reliability of the

three children's participation and disruptive behavior ranged from 80% to 100%; condition means for nonoccurrence of the behavior ranged from 82% to 100%.

Frequency reliability measures were obtained on teacher behaviors for approximately one-third of the sessions. A second observer independently listened to a tape recording of the transition period and scored the frequency of teacher prompts and praise. Interobserver agreement was obtained by dividing the smaller number of teacher behaviors scored by the larger number scored. Mean agreement for the frequency of each teacher behavior ranged from 84% to 98% across conditions.

Agreement on the rating scale was obtained by having a second observer simultaneously and independently complete the rating scales on all children at the end of the transition period once during each condition. Interobserver agreement was calculated by dividing the sum of observer agreements on the rating scale by the sum of agreements plus disagreements and multiplying by 100. Mean agreement for the rating scale ranged from 87% to 100% across conditions.

Procedure and Design

An ABAC design was implemented to determine if a token reinforcement system implemented first by the classroom teacher, and subsequently by children appointed to be peer monitors, would reduce disruption and increase participation during the transition period.

Baseline. During baseline the teacher described the three transition activities and child responsibilities, but established no special contingencies for appropriate performance. The teacher prompted participation throughout the transition period.

Teacher monitoring. During the initial three sessions the teacher described the token system, role played appropriate transition behaviors, and quizzed the children to ensure that they understood the procedures. In addition, the three target children received brief training sessions each day to remind them of the rules and to allow them to role play potential transition situations. Occasionally other children in the class participated in the

training session if they appeared confused about the procedures or if they had misbehaved seriously on the previous day. Children were assigned daily to different teams. Each team was directed to clean one area of the classroom, to go as a group to the restroom, and to wait quietly on individual mats after they returned. Each child in the class received one point for participating appropriately in each transition activity. The points were awarded publicly by the teacher at the end of the transition period.

Children who earned three points were eligible to vote for and participate in the daily outdoor activity (e.g., kite flying, frisbee throwing, softball); children who received two points could participate in the activity but could not vote on its selection. Children who earned only one point or no points were required to remain inside during the outdoor activity and to clean other areas of the classroom.

Reversal. Following the teacher-implemented token system, a reversal to the baseline condition was conducted. The teacher briefly described child responsibilities for the three transition activities, but did not implement the token system or provide contingencies for appropriate participation. As in baseline, children were not assigned to teams.

Peer monitoring. The point system and backup reinforcement activities used during the teacher-monitored condition were reinstituted. However, during this condition the teacher appointed one child per team to serve as team captain and to monitor the team's performance. Children were eligible to be team captains or monitors if they had received three points on the previous day. Their names were placed in a lottery from which three names were drawn. All children were appointed as monitor at least once, with the exception of C₃ (who was eligible on only two occasions and whose name was never drawn). Each day the three peer monitors were instructed to participate in the transition, to watch their teammates, to remind them of appropriate behaviors, and to award points for their participation. At the end of the transition period, each peer monitor awarded points publicly to their team members and to themselves. The

teacher assisted the peer monitor in the point award by asking the monitor if the team members had appropriately fulfilled the three transition responsibilities. To determine if the peer monitors would award points contingent on appropriate behavior, the teacher was instructed not to correct children who awarded points inaccurately, i.e., gave points to children who had behaved inappropriately.

RESULTS

Figure 1 shows the rates of child participation and disruptive behavior for C₁, C₂, and C₃. In general, the teacher-monitored and peer-monitored conditions substantially reduced the children's disruptive behavior and promoted their participation. During baseline, disruptive behavior was high, averaging 36% for C₁, 62% for C₂, and 59% for C₃. Disruptive behavior decreased rapidly, however, with the introduction of the teacher-monitored token system. It declined to an average rate of 12% for C₁, 23% for C₂, and 22% for C₃. Increases in disruptive behavior were produced only when a reversal to the baseline condition was implemented. Disruptive behavior of C₁, C₂, and C₃ then increased to averages of 18%, 39%, and 49%, respectively. Implementation of the token system, this time monitored by peers, successfully reduced disruptive rates to the lowest averages of the study: 1% for C₁, 8% for C₂, and 11% for C₃.

Levels of participation also increased substantially for all children during the teacher- and peer-monitored phases. During baseline, participation by the three children averaged 47%. Following introduction of the teacher-monitored condition, participation by C₁ doubled, increasing to 97%, and participation by C₂ and C₃ rose to 84% and 87%, respectively. When the reversal to baseline condition was implemented, participation decreased, although not to previous baseline levels. Participation rapidly increased once again to 90% levels when the token system was reimplemented by peers.

Performance ratings obtained with all members of the class are presented for each child as condition averages in Table 1. Performance by four of the peers (P₇, P₈, P₉, P₁₀) was consistently rated as

Table 1
Condition Averages of Each Child's Acceptable
Performance During the Transition Activities as Measured
by Checklist Ratings During Experiment 1

	Baseline	Teacher- monitoring	Reversal	Peer- monitoring
C ₁	—	89	74	83
C ₂	—	71	41	63
C ₃	—	55	32	83
P ₇	—	59	39	83
P ₈	—	93	72	100
P ₉	—	84	63	92
P ₁₀	—	64	44	78
P ₁₁	—	100	100	100

more acceptable during the two monitoring conditions than in the reversal to baseline condition. Their average ratings of acceptable performance ranged from 59% to 93% during the teacher-monitored condition, varied from 39% to 72% during the reversal, and ranged from 78% to 100% during the peer-monitored condition. The performance of P₁₁ was an exception to this trend; it was rated as 100% acceptable in all three conditions. Ratings for the three target children are also presented in Table 1, and appear comparable to the ratings of the first four peers.

To determine the accuracy with which the teacher and peer monitors awarded points, a comparison was made between the ratings of the children's acceptable performance and their record of point awards. Two measures representing *correct consequences* were examined: the number of acceptable ratings that corresponded with points awarded and the number of unacceptable ratings that corresponded with points withheld. The analysis indicated that both the teacher and peer monitors consistently awarded points for appropriate performance; the correspondence was 100% between acceptable ratings and point awards in both teacher-monitoring and peer-monitoring conditions. The teacher and peer monitors, however, were less accurate at withholding points for unacceptable per-

formance. The teacher withheld points on 78% of the occasions in which a child's performance was rated as unacceptable (i.e., seven of nine opportunities); peer monitors withheld points from team members on 45% of these occasions (i.e., 10 of 22 opportunities). The peer monitors were even less accurate in withholding their own points following unacceptable performance: They withheld points on only 29% of the occasions in which they were rated as unacceptable (i.e., two out of seven opportunities).

Finally, the rates of prompts and praise by the teacher were examined to determine their influence on improvements in child performance. In general, the teacher presented the highest rate of prompts during baseline, averaging 2.8 per minute. The average rate per minute subsequently declined across conditions, decreasing from 2.15 in the teacher-monitored condition to 1.8 in the reversal to baseline, to 0.92 in the final condition, peer monitoring.

The rate of teacher praise fluctuated somewhat between conditions; it was highest in the teacher-monitored condition, averaging five per minute. In other conditions the teacher averaged 3.1 praises per minute during baseline, 1.3 per minute during the reversal condition, and 2.3 per minute during the peer-monitored condition.

No formal data were collected on prompts and praise by the peer monitors. Anecdotal reports indicated that praise rarely occurred. Team captain prompts, however, were noted typically two to three times per session in the peer-monitoring condition.

EXPERIMENT 2

METHOD

Children and Setting

The second experiment was conducted to determine if peers could introduce and monitor the token system without a prior teacher-monitored con-

Figure 1. Percentage of disruption and participation exhibited by target children, C₁, C₂, and C₃ over total intervals in Experiment 1.

dition. This experiment was conducted the following summer during the transition period of the remedial kindergarten classroom. The class contained nine children, ranging in age from 5 to 7, who had been referred by parents or public school personnel for behavior management and academic assistance. All children exhibited behaviors that had interfered with their performance in their regular kindergarten classroom. All nine children participated in the study. Seven of these children exhibited serious behavior or learning problems (ranging from elective mutism to oppositional behaviors). One child (P_{11}) had attended the remedial class during the previous summer. Continuous 5-second interval data again were obtained on three children. Two of the children (C_5 and C_6) were chosen because they were highly disruptive during transition periods. The other child (C_4) was selected because she participated in the transition activities at a very low rate. C_4 , a 6-year-old girl, exhibited developmental delays; C_5 , a 6-year-old boy, exhibited severe articulation problems and language delays, as well as occasional tantrums and oppositional behavior. C_6 , a 6-year-old boy, exhibited developmental delays and a high rate of oppositional behavior. As in Experiment 1, one teacher was present in the classroom during all conditions of the study. The transition period averaged 15.6 minutes and ranged from 15 to 18 minutes.

Behaviors

Definitions for child participation and disruption were the same as those used in Experiment 1. In addition, the peer-monitor prompts and praise were scored within continuous 5-second intervals. These were defined as follows:

1. *Peer-monitor prompts* were scored whenever the monitor instructed or suggested that team members begin or resume appropriate transition behaviors or cease inappropriate behavior (e.g., "Go to the bathroom," "Stop playing!").

2. *Praise* for appropriate behavior was scored each time the monitor commented favorably on a team member's performance (e.g., "Good," "Thanks for waiting.").

Ratings were again made with the checklist used in Experiment 1 to assess all children's performance during the three transition activities. Likewise, teacher instructions, prompts, and praise were scored from tape recordings, using the same definitions described in Experiment 1.

As in Experiment 1, occurrence and nonoccurrence reliability measures were obtained during each condition for child participation and disruption. Reliability was assessed for each child at least once per condition. Mean condition agreement for occurrence of each child behavior ranged from 80% to 100%. Mean agreement per condition for nonoccurrence ranged from 75% to 100%. Interobserver agreement for frequency of peer-monitor prompts and praise and teacher behaviors were likewise obtained for each condition. Mean agreement for peer-monitor prompts and praise ranged from 78% to 100%. Mean agreement for occurrence of the measured teacher behaviors ranged from 83% to 99%. In addition, interobserver agreement was obtained on the rating scale once or twice in each condition using the method described in Experiment 1. Mean agreement ranged from 89% to 100% by condition.

Procedure and Design

Two peer-monitored conditions were implemented, each in a multiple baseline design across the three target children (C_4 , C_5 , and C_6). The children's duties during the transition period were the same as in Experiment 1 (i.e., cleaning the learning centers, using the washroom, and waiting quietly on the mats).

Baseline. Children were assigned to teams during baseline to control for any effects that team placement alone might have on child participation. The teacher described the three transition duties but did not introduce the special contingencies for the children's participation. In addition, the teacher was directed to limit prompts to an average of one per minute, and to direct the prompts to the children as a group, rather than to children individually.

Peer monitoring with corrective teacher feedback. The peer-monitoring intervention was im-

plemented in a multiple-baseline fashion across teams. Children assigned to the team containing C_4 entered the intervention condition first. Membership of the teams was held constant from the end of baseline until all members of the class were in the intervention condition. At this point, team memberships again were randomized. Immediately prior to each team's intervention, members of the team met with the teacher for a training session. The teacher described the system, role played duties with the children, and quizzed the children to ensure that they understood the procedure.

As in Experiment 1, the three peer monitors were selected from a pool of children who had earned three points on the previous day. Assignment appeared random; however, the selection sometimes was predetermined to ensure that all children had the opportunity to be team captain. Team members continued to be assigned to teams by the teacher.

During the first 3 days in which a team was in the peer-monitored condition, the teacher reminded the monitors of the procedures and of their duties (e.g., "Is everyone walking? Are they earning their points? Why?"). Unlike Experiment 1, individual training sessions were not conducted with the three target children, C_4 , C_5 , and C_6 , but instead were conducted with children appointed as monitors. As in Experiment 1, the children role played appropriate transition behavior. In addition, they practiced making point awards and giving corrective feedback. At the end of each transition period the peer monitor met with the teacher and members of the team to award the points. If a monitor began to award a point incorrectly, the observer who rated that team signaled the teacher to indicate that the point award was incorrect. The teacher corrected the monitor, explained that the child had not earned a point, and that the monitor could not award it. As in Experiment 1, points were exchanged for voting privileges and participation in outdoor time.

Peer monitoring with no corrective feedback. During the no-feedback condition the teacher ceased providing corrective feedback to the peer monitors regarding the accuracy or inaccuracy of

their point awards. All other procedures remained the same.

RESULTS

Figure 2 shows the rates of participation and disruptive behavior for C_4 through C_6 . Introduction of the token procedure with peer monitoring dramatically decreased the children's disruptive behavior and increased their participation. Baseline rates of disruption averaged 18% for C_4 , 48% for C_5 , and 53% for C_6 . Implementation of the peer-monitored token procedure quickly reduced their disruption to an average of 8% or less. Comparable low rates were maintained in the subsequent condition when no corrective feedback was provided by the teacher regarding the monitor's accuracy in awarding points.

The peer-monitored token system concurrently increased desirable rates of participation for the three target children. Participation rose from a baseline average of 62% to 97% for C_4 , and participation for C_5 and C_6 doubled from a baseline average near 40% to treatment averages near 90%. In general, the three children maintained these high levels of participation during the peer-monitored condition when no corrective feedback was provided.

Performance of C_6 during the bathroom phase of the transition period presents the one exception. Figure 3 presents his rates of disruption and participation during the three transition activities: cleanup time, bathroom time, and mat time. Introduction of the peer-monitored token system immediately decreased C_6 's disruption from high rates to a low rate of 4% in all activities; the intervention likewise increased his participation to above 90% in all activities. During the no-corrective feedback condition, however, he exhibited high rates of disruption once again in the bathroom on days in which girls served as his peer monitor. His performance could not be observed directly during bathroom time by girl monitors because the boys and girls used separate facilities. On these days (Sessions 17, 18, 22, 27, and 31) C_6 's disruption averaged 40%. In contrast, his disruption averaged only 8% when another boy served as peer monitor,

Figure 2. Percentage of disruption and participation exhibited by target children, C₄, C₅, and C₆ over total intervals in Experiment 2.

Figure 3. Percentage of disruption and participation over total intervals exhibited by C₆ in each of the transition activities: cleanup, bathroom, and mat (waiting) time.

Table 2
Condition Averages of Each Child's Acceptable
Performance During the Transition Activities as Measured
by Checklist Ratings During Experiment 2

	Baseline	Peer-monitoring	
		With corrective feedback	Without corrective feedback
C ₄	69	89	82
C ₅	0	79	100
C ₆	0	89	67
P ₁₁	92	100	100
P ₁₂	100	100	98
P ₁₃	100	100	100
P ₁₄	33	96	88
P ₁₅	17	71	67
P ₁₆	67	89	86

and 16% when C₆ served as his own peer monitor. He was the only child whose performance varied in one of the three activities following implementation of the peer-monitored token system. Likewise, C₆ was the only child who responded differentially to peer-monitor assignments.

Checklist data were again taken daily to assess all children's performance in the three transition activities. Condition averages of acceptable performance ratings are presented for each child in Table 2. The nontarget children's average ratings ranged from 17% to 100% during baseline conditions. The children with low ratings (P₁₄, P₁₅, P₁₆) immediately improved their performance during the peer-monitoring conditions whereas children with high baseline ratings maintained their appropriate behavior. The average ratings of acceptable performance ranged from 71% to 100% during the peer-monitoring with corrective feedback conditions and similarly ranged from 67% to 100% during the peer-monitoring with no corrective feedback conditions.

The checklist data were again compared with the record of point awards to determine the accuracy with which the peer monitors awarded points to their team members, as well as to themselves. As in Experiment 1, the correspondence between acceptable ratings and point awards was 100%. Again, the team captains were less accurate at

withholding points for unacceptable performance. During the no-corrective feedback condition, they withheld points on only 24% of the occasions (i.e., 8 of 32 opportunities) in which their teammates' performance was rated unacceptable; likewise team captains withheld their own points on only 23% of such conditions (i.e., 8 of 35 opportunities).

Observational data were collected on the peer monitors' rate of prompts and praise during the peer-monitoring conditions. (Data could not be collected in baseline because peer monitors had not been appointed.) All children were appointed to serve as peer monitors at least four times during these conditions, and all children were observed to prompt their teammates. In general, peer monitors prompted at a rate of 0.29 per minute or approximately four to five times per session. More specifically, teams in which C₄, C₅, and C₆ were members received an average of 0.26, 0.37, and 0.34 prompts per minute from their peer monitors. Peer monitors rarely praised. Children appointed as peer monitors to C₄'s team never praised; C₅'s team was praised only once on Day 10 (by P₁₁); and C₆'s team was praised on Day 14, at a high rate of 15 times (by P₁₂).

Prompts and praise stated by the target children on days when they were appointed as peer monitors suggest that they performed in a comparable fashion to their peers: C₄ prompted at an average rate of 0.37 per minute, C₅ prompted his team members at a somewhat lower rate of 0.12, and C₆ prompted most frequently, averaging 0.57 prompts per minute. As with their peers, they rarely praised during the transition activity: C₄ was observed praising on one occasion and C₆ on two occasions.

Finally, rates of teacher prompts and praise were analyzed to determine their influence on child performance. Prior to the study the teacher was instructed not to praise and to maintain a low rate of prompts, no more than one per minute. The teacher complied with this instruction and during baseline prompted approximately 0.90 per minute; this rate decreased during the peer-monitoring conditions to 0.59 per minute. No teacher praise was observed throughout the study.

GENERAL DISCUSSION

Results of Experiments 1 and 2 indicate that kindergarten-aged children with behavior and learning problems can successfully manage the behavior of their peers. In Experiment 1, we demonstrate that peer monitoring with corrective feedback may be as effective as teacher monitoring; both procedures reduced disruptive behaviors and increased participation during a cleanup and transition period. In Experiment 2, we demonstrate that peer monitors can implement the procedure without a prior adult-monitoring condition, at least when provided with corrective feedback from the teacher. These results also suggest that once the procedure is established children can administer it, independent of teacher feedback. The ability of the children to implement the procedure without the initial corrective feedback condition was not examined in this study; the inclusion of corrective feedback was regarded as a necessary tool to teach young children to implement the monitoring program effectively.

The effectiveness and accuracy with which children monitored one another was a focal interest in this study. Analysis of the point awards demonstrates that the peer monitors were fair in awarding points that were earned. Interestingly, however, the peer monitors consistently failed to withhold points for undesirable behavior. In Experiment 1, peer monitors withheld points on only 45% of the occasions in which a child's performance was rated as unacceptable by observers and in the no-corrective feedback phase of Experiment 2, withheld points on only 24% of such occasions.

Failure by the peer monitors to withhold points could have been due to several factors, alone or in combination: (a) the monitors were not always accurate observers of their teammates' performance and did not see some misbehaviors; (b) their definition of misbehavior may have differed from that of the adult observers; (c) they lacked the skill to withhold the point award; or (d) they were reinforced by their teammates for awarding points. The first two explanations probably accounted for many of the errors. Given that the teacher's ratings

of child behavior did not always agree with the observer's ratings, some of the peer monitors' errors likewise could be attributable to observational error. Comments by the children during the corrective feedback conditions also suggest that their definition of disruptive behavior included only misbehaviors that were highly salient (e.g., yelling, running, fighting), or of long duration (e.g., 30 seconds or longer).

The last two explanations should not be discounted, however. On a few occasions, peer monitors clearly hesitated to withhold points from a teammate and sometimes only withdrew points after teacher prompting during the corrective feedback condition. Team captains withheld more than one point from a child on only five occasions when no feedback was provided. This small number of instances may be related to the fact that the loss of two or more points resulted in the loss of recess. Friendship issues or a fear of confrontation over withholding points may also have influenced monitors. On several occasions, they were overheard to make reconciliatory comments, such as "I'm sorry I had to take your point away today, but we'll still be friends." Teammates were never heard to threaten their monitors with loss of friendship or retaliatory point withholdings. In fact, disagreements over point awards occurred on only three occasions; in each case the teammate disagreed verbally with the captain's decision to not award a point (e.g., "No, I didn't run!"). The teacher briefly intervened on the side of the monitor and settled the dispute. Finally, awarding points clearly was preferable to withholding points; teammates often cheered and clapped over their own and others' awards. Such peer reinforcement may have hindered justified point withdrawals, but perhaps also prevented unfair point losses.

The importance of withholding points, in relation to awarding points, was not analyzed. The intermittent schedule of point withholdings undoubtedly was critical to the success of the procedure; reinforcement would have been noncontingent during the no-corrective feedback conditions without the occasional point withholding. In fact, C₆'s variable behavior during the bathroom, seg-

ment of transition demonstrates the need for at least occasional point loss. His disruptive behavior in the bathroom increased during the no corrective feedback condition on days in which he was monitored by a girl; the girls never observed his disruptive bathroom behavior, and with the exception of the last day of the study, never withdrew a point for it.

Additional research might compare whether the public delivery of point losses and awards produces more rapid deceleration of negative behaviors; if so, then the need for consistent and contingent point losses is lessened. Kazdin (1981) has speculated that vicarious effects may be achieved through the observation of consequence delivery. This explanation seems quite plausible, given the low number of points actually lost by individual classmates. Throughout the study, the six target children lost an average of only 12 points and their peers each lost an average of 7 points.

Interestingly, children appointed to monitor the transition period considered themselves appointed for the day. In several instances, team captains prompted appropriate behavior during other transition segments of the day, such as the transition to recess and the transition to independent work time. Proponents of peer-mediated interventions have suggested that peers, previously involved in interventions, may function as cues or common stimuli for desirable behavior in other situations (e.g., Greenwood & Hops, 1981; Greenwood et al., 1974; Strain et al., 1976). In this study, team captains often seemed to assume these discriminative qualities during later activities of the day. Researchers might examine the generality and durability of these effects, particularly in situations where teachers are not available to exert control.

Not surprisingly, appointment as team captain became the most requested and apparently powerful reward of the reinforcers available in the study. Strain (1981b) and Lott and Lott (1974) suggest that leadership positions, such as team captains, are likely to be highly reinforcing; appointment to the leadership position tends to increase a child's number of positive social contacts, leads to reciprocal social contacts, and increases a child's peer

status, as measured by sociometrics. Anecdotal observations in this study support these premises. Almost every child was observed to comment that they were "being good" so that they could be a team captain. When serving as team captain they interacted positively with their teammates, occasionally prompting them to share and often assisting them in the cleanup.

Finally, several cautionary measures were taken to limit potential risks in this study. The risk that children might use the point system in a punitive fashion or provide feedback to teammates in a punishing way was minimized in each experiment by implementing an initial condition in which appropriate monitoring techniques were modeled, instructed, and reinforced. Throughout the study, a teacher was available to intervene on the few occasions in which a teammate disagreed with the team captain's point awards. Although no contingencies were placed on the captains to provide positive or corrective feedback to peers, the children received training in providing such feedback. Finally, because each child was working independently for points, there was little risk of team coercion.

In summary, we demonstrate that children, as young as kindergarteners, can serve as mediators in a behavior management program and thus reduce the teacher's supervisory duties, at least partially. Furthermore, we demonstrate that even children with serious behavior and learning problems can effectively manage their peers' behavior and be managed by their peers. Given these results, the use of peer-mediated interventions appears to offer a viable solution to the increasing demands placed on regular classroom teachers.

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