

*AN ANALYSIS OF SOME VARIABLES  
INFLUENCING THE EFFECTIVENESS OF REPRIMANDS*

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Although several studies have shown that social reprimands can function as punishers, no study reported to date has isolated any of the factors influencing reprimand efficacy. Three experiments were conducted to investigate several factors. Experiment 1 used an alternating treatments design and was conducted on two elementary school boys, one of whom was in a special education class. Results showed that verbal reprimands delivered with eye contact and firm grasp of the student's shoulders reduced disruptive behavior to a greater extent than did verbal reprimands delivered without eye contact and grasp. Both types of reprimand were more effective than a baseline condition during which disruptive behavior was ignored. Experiment 2 also used an alternating treatments design and was conducted on one elementary school boy. Results demonstrated that reprimands delivered from one meter away were considerably more effective than reprimands delivered from seven meters away. Experiment 3 used a reversal design and was conducted on two pairs of elementary school children, one a pair of boys and the other a pair of girls. Results demonstrated that reprimands delivered to just one member of the pair reduced the disruptive behavior of both members of the pair. Thus, the effects of reprimands "spilled" over to nonreprimanded students.

DESCRIPTORS: reprimands, disruptive behavior, disapproval, proximity, vicarious punishment

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Although several studies have indicated that reprimands are the most common form of punishment used in the classroom (Heller & White, 1975; Thomas, Presland, Grant, & Glynn, 1978; White, 1975), they have received far less experimental attention than other less commonly used forms of punishment such as time-out and over-correction.

One reason the use of reprimands has attracted so little experimental attention may be that the results of two early studies suggested that reprimands were at best ineffective punishers when used in the classroom setting. In one

study, Thomas, Becker, and Armstrong (1968) examined the effects of praise and reprimands on the behavior of 28 elementary school children. Their results showed that increasing disapproval to three times its normal rate did not decrease misbehavior. The authors also suggested that the reprimands probably increased the frequency of some of the behaviors they followed, although a close inspection of the data does not support this conclusion. In a second study, Madsen, Becker, Thomas, Koser, and Plager (1968) reported that "sit down" commands, which can be considered a form of verbal reprimand, seemed to increase classroom out-of-seat behavior. Again, a close inspection of their data shows considerable overlap between data from the baseline and the increased "sit down" command conditions. Hence, the only clear conclusion that can be drawn from both studies

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is that increased reprimanding did not decrease misbehavior.

Other studies have demonstrated that reprimands can be effective in the classroom setting. For example, Hall, Axelrod, Foundopoulos, Shellman, Campbell, and Cranston (1971) demonstrated that reprimands consisting of the teacher pointing at the child and shouting "No!" markedly reduced biting and pinching in a 7-year-old retarded girl. Likewise, O'Leary, Kaufman, Kass, and Drabman (1970) found that reprimands could decrease misbehavior in the classroom. In another study, Jones and Miller (1974) found that two teachers taught to reprimand in the same way as two other more successful teachers were able to reduce classroom disruptive behavior.

In summary, two studies have found reprimands to be ineffective in the classroom while three others have found them to be effective. There are several possible reasons for these conflicting results. First, various uncontrolled variables relating to the children's prior history of reprimands may have been responsible for these results. A second explanation involves the ways in which reprimands were delivered in each of the different studies. Although variables such as the delivery of an M & M candy or an electric shock are easily specified and relatively invariant, what constitutes a reprimand may vary considerably from teacher to teacher. Just as previous work has shown that many variables influence the efficacy of teacher praise (Bernhardt & Forehand, 1975; Goetz & Salmonson, 1972; Kazdin, 1977; Kazdin & Klock, 1973), it is likely that similar factors influence the efficacy of reprimands. This paper reports the results of three experiments designed to investigate several possible variables.

Kazdin and Klock (1973) have shown that the presence of nonverbal aspects of behavior, such as smiles and physical contact, can greatly increase the reinforcing property of verbal praise. Nonverbal behavior may have a similar influence on the efficacy of reprimands. In several studies conducted in home and laboratory

settings, effective reprimands were accompanied by a firm grasp of the reprimanded child's upper arm or shoulder and long periods of eye-to-eye contact which could be termed "hard stares" or "glares" (Doleys, Wells, Hobbs, Roberts, & Cartelli, 1976; Forehand, Roberts, Doleys, Hobbs, & Resick, 1976). Similarly, Jones and Miller (1974) reported that, as part of a program for improving the performance of teachers, ineffective teachers were instructed to reprimand with a facial expression compatible with disapproval.

Unfortunately, none of these studies attempted to determine whether these nonverbal aspects increased reprimand effectiveness. Therefore, the purpose of the first experiment was to examine whether nonverbal aspects of reprimands consisting of a firm grasp and a fixed stare increase reprimand effectiveness.

Another variable that may influence the effectiveness of reprimands is the distance between the teacher delivering the reprimand and the student receiving it. One might suspect that reprimands given at a greater distance would be less threatening and therefore less effective. Therefore, the purpose of the second experiment was to determine whether proximity influences reprimand effectiveness.

Finally, several studies have shown that the use of praise in social situations can be enhanced through the careful use of "spillover" effects (Brodén, Bruce, Mitchell, Carter, & Hall, 1970; Kazdin, 1973, 1977; Kazdin, Silverman, & Sittler, 1975). Kazdin (1979) suggests that this effect is the result of stimulus control developed by the delivery of reinforcement. He reasoned that the delivery of reinforcement to one individual is generally associated with an increase in the probability that the behavior of others will also be reinforced. Hence, students come to discriminate that the delivery of praise to others signals an increased likelihood that certain of their behaviors will also result in praise.

The purpose of the third experiment was to determine whether the use of reprimands in

social situations is enhanced by the same type of "spillover" effect observed to occur with the use of praise.

## EXPERIMENT 1

### METHOD

#### *Participants and Setting*

Two boys, Billy and Peter, participated in this experiment. Billy was nine years old and attended fourth grade in an inner city school. Peter was a 12-year-old student in a special education class. Both boys were identified by their teachers as having behavioral problems even though they generally completed their assigned work. The boys were observed during daily 45-min math periods conducted in their respective classrooms.

#### *Apparatus*

The experimenter signaled the teacher to deliver reprimands by tapping the mouthpiece of a Micro FM wireless microphone (model WM 103). The teacher received the signals with a Realistic AM/FM pocket radio tuned to receive transmissions from the wireless microphone. The teacher carried the radio in a pocket of a sweater and listened to the signals through an earphone. Hence, only the teacher could hear the signal.

#### *Measures*

Observers attended class several days prior to the beginning of the experiment in order to allow the students to adapt to their presence. Observers watched the students for the entire 45-min class period. All behaviors were recorded during consecutive 10-sec intervals. A partial interval sampling procedure was used to measure each behavior such that a student was scored as engaging in a behavior whenever that behavior was observed during a 10-sec observation interval.

*Disruptive behavior.* Disruptive behavior consisted of any of the following: talking out of turn, making noises, wandering around the

room, playing with or throwing instructional materials, fighting, and inappropriate physical contact with another student. In order to control for possible effects of the teacher's proximity to the student, observers disregarded any intervals during which the teacher provided help to the target student or to the student seated directly in front of or behind him.

A second independent observer also recorded disruptive behavior for the entire 45-min period on at least two sessions during each condition. Both observers began recording at a designated signal and stopped at the end of the period. The percentage of interobserver agreement on the occurrence of disruptive behavior was calculated by dividing the number of times the observers agreed on its occurrence by the number of times they agreed or disagreed on its occurrence. Similarly, interobserver agreement on the nonoccurrence of disruptive behavior was calculated by dividing the number of times both observers agreed on its nonoccurrence by the number of times they agreed or disagreed on its nonoccurrence.

For Billy, the mean percentage of interobserver agreement on the occurrence of disruptive behavior was 91% and ranged from 81% to 100%. The mean percentage of agreement on the nonoccurrence of disruptive behavior was 89% and ranged from 73% to 100%. For Peter, the mean percentage of agreement on the occurrence of disruptive behavior was 91% and ranged from 86% to 98%. The mean percentage of agreement on the nonoccurrence of disruptive behavior was 88% and ranged from 75% to 95%.

*Other measures.* The observers recorded all reprimands and praises delivered by the teachers to students in the classrooms. Observers also recorded whether the teacher made eye contact with the target student or held the target student by the upper arm or shoulder while delivering a reprimand. The mean percentage agreement on the occurrence and the nonoccurrence of reprimands to the target students was always 100%. Observers were also always in perfect

agreement about whether a reprimand was delivered with eye contact and grasp of the upper arm or shoulder. Both teachers were asked not to praise the target students during experimental sessions. Peter's teacher did not deliver any praise to Peter during the experiment while Billy's teacher delivered only two praises to Billy throughout the entire experiment.

### *Experimental Design*

Following a baseline phase, during which the teachers were instructed to ignore all instances of disruptive behavior, each 45-min math class was divided into three successive 15-min periods. Each 15-min period was associated with a different consequence for misbehavior, but the order in which these consequences were presented varied randomly from day to day. On some sessions verbal reprimands alone were delivered during the first 15-min period and verbal reprimands combined with eye contact and firm grasp were delivered during the third 15-min period. On other sessions verbal reprimands combined with eye contact and firm grasp were delivered during the first 15-min period and verbal reprimands alone were delivered during the third 15-min period. Baseline conditions (no reprimands) were always in effect during the second 15-min period. Following this phase, baseline was again put in effect during the entire 45-min class. Finally, both types of reprimand were again introduced.

This design allows the direct daily comparison of both types of reprimands with the baseline condition and with each other. Comparing several treatments through the use of a multiple or mixed schedule is an established method in the experimental analysis of behavior (Sidman, 1960) and recently has been advocated for use in applied behavior analysis research (Barlow & Hayes, 1979; Kazdin & Hartmann, 1978).

*Baseline 1.* During this phase, both teachers were instructed not to deliver praise or reprimands to the target students. The teachers were given an FM radio receiver with an earphone to wear during this condition.

*Reprimand 1.* During this phase, the teachers were instructed to deliver one type of reprimand for the first 15 min of the 45-min period, no reprimands for the middle 15 min of the period and the remaining type of reprimand for the final 15 min of the period. The order in which the two reprimand conditions were presented each day was randomly determined. Hence, each day the student was exposed to 15 min of baseline and both of the two reprimand conditions.

When the verbal alone reprimand condition was in effect, the teacher was directed to deliver verbal reprimands according to a variable interval 2-min schedule of punishment such that reprimands were delivered following the first misbehavior occurring after 2 min, on the average, had elapsed. One observer held a sheet that contained a sequence of different predetermined intervals, the mean of which was 2 min. The observer began timing the first interval at the beginning of the reprimand condition. Once the interval was timed out, the first instance of misbehavior caused the observer to tap the microphone of the FM wireless transmitter, and thus signal the teacher to deliver a reprimand. After the reprimand was delivered the observer began timing the second interreprimand interval. This procedure was continued until the end of the 15-min verbal reprimand period. Hence, the first misbehavior following the end of a 2-min interval, on the average, was punished.

A VI 2-min schedule was selected for the delivery of reprimands in all the experiments reported in this paper because it closely approximated the natural rates of teacher reprimands delivered to the target students during a pre-baseline observation session.

All reprimands during the verbal alone condition were delivered within an arm's length of the target student so that proximity would not be confounded with physical contact. The teachers were also instructed to use a firm tone of voice. However, the teachers were instructed not to make eye contact with or touch the target students while delivering reprimands. In addi-

tion, all reprimands took the following standard form: First, the child being reprimanded was named; second, the child was told to stop the undesirable behavior, immediately, e.g., "Billy, stop talking to Shawn this instant!"

When the baseline condition was in effect, the teacher ignored all misbehavior. This condition was always in effect during the 15-min period separating the two reprimand conditions.

When the verbal plus nonverbal reprimand condition was in effect, reprimands were again delivered according to a VI 2-minute schedule. This condition was carried out in the same manner as the previous condition in all but two important respects. First, the teacher always made eye contact with the student being reprimanded for the duration of the reprimand. Second, the teacher gently held the student by the upper arm or shoulders for the duration of the reprimand. On several occasions, Peter was observed to turn away to avoid the teacher's gaze. In these instances the teacher gently guided his head back to reinstate eye contact. On no occasions did either child attempt to escape the teacher's grasp.

*Baseline 2.* During this phase, the teacher was again instructed not to reprimand the target student. This phase was carried out in the same manner as the baseline 1 phase and the 15-min baseline condition of the reprimand phase.

*Reprimand 2.* This phase was carried out in the same manner as the first reprimand phase.

## RESULTS AND DISCUSSION

Billy's percent disruptive behavior during all experimental conditions is presented in Figure 1. The level of disruptive behavior whenever reprimands were delivered was lower than during the baseline 1 and baseline 2 phases and lower than during the 15-min baseline conditions scheduled during the two reprimand phases. Furthermore, on all sessions during which reprimands were scheduled, verbal plus nonverbal reprimands produced a more pronounced reduction than verbal reprimands alone.

Peter's percent disruptive behavior during all experimental conditions is presented in Figure 2. Peter's data also show that although both types of reprimands reduced disruptive behavior, verbal plus nonverbal reprimands produced a much greater reduction than verbal reprimands alone.

A comparison of the number of reprimands delivered to the target students during each condition shows that both Billy and Peter received more scheduled reprimands during the verbal alone condition than during the verbal plus nonverbal reprimand condition. For example, Billy received an average of 2.5 reprimands per session in the verbal alone condition, but an average of only 1.6 reprimands per session in the verbal plus nonverbal condition. Peter received an average of 4.9 reprimands per session in the verbal alone condition compared with an average of 3.8 reprimands per session in the verbal plus nonverbal reprimand condition. In other words, the greater reduction in disruptive behavior during the verbal plus nonverbal reprimand condition was achieved with *fewer* reprimands. Thus, in terms of the percent decrease in disruptive behavior per reprimand, the data in Figures 1 and 2 represent underestimates of the superiority of verbal plus nonverbal reprimands over verbal reprimands alone.

The delivery of fewer reprimands during the verbal plus nonverbal condition was not part of the experimental design, since reprimands were delivered on a VI 2-min schedule during both reprimand conditions. Rather, an examination of the data revealed that fewer reprimands were delivered during the verbal plus nonverbal reprimand condition because the effects of initial reprimands persisted longer. Hence, even when the VI schedule indicated that a reprimand could be delivered, the teacher was required to wait longer before an instance of misbehavior made reprimand delivery appropriate.

Although one could argue that the results of this study may have been influenced by behavioral contrast between the baseline and various punishment conditions, there are several reasons

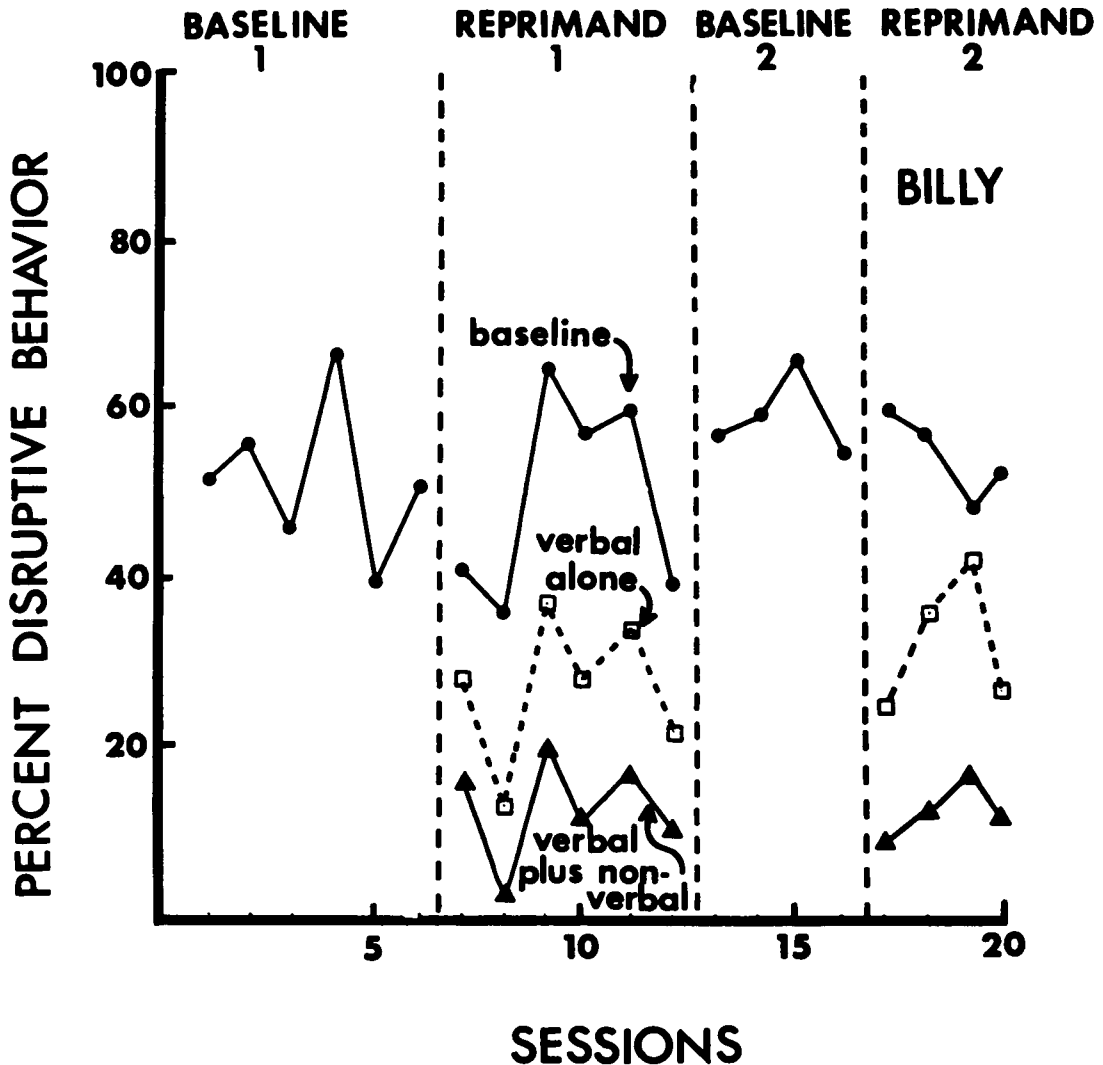


Fig. 1. The percentage of 10-sec intervals during which Billy was engaged in disruptive behavior during each session of the experiment. Separate curves in the Reprimand 1 and Reprimand 2 phases denote behavior during baseline, verbal reprimand alone and verbal plus nonverbal reprimand conditions.

why it is very unlikely that contrast effects actually occurred in this experiment. First, contrast effects typically do not occur unless the duration of schedule components is very brief—1 or 2 min (Green & Rachlin, 1975; Rachlin, 1973). In the present experiment each treatment lasted 15 min. Second, and perhaps more important, if a contrast effect had occurred one would expect an increase in responding in the condition not associated with punishment, i.e., the baseline condition (Brethower & Reynolds, 1962; Terrace, 1968). However, neither Billy's nor Peter's

baseline response rate increased following the introduction of punishment. If the presence of punishment conditions immediately before and after daily baseline sessions did not produce an increase in baseline responding it is unlikely that they would have exerted an influence on each other since the magnitude of contrast effects is directly proportional to the difference between the conditions being contrasted.

Although it is unlikely that a behavioral contrast effect occurred in this experiment, the validity of these findings would not have been

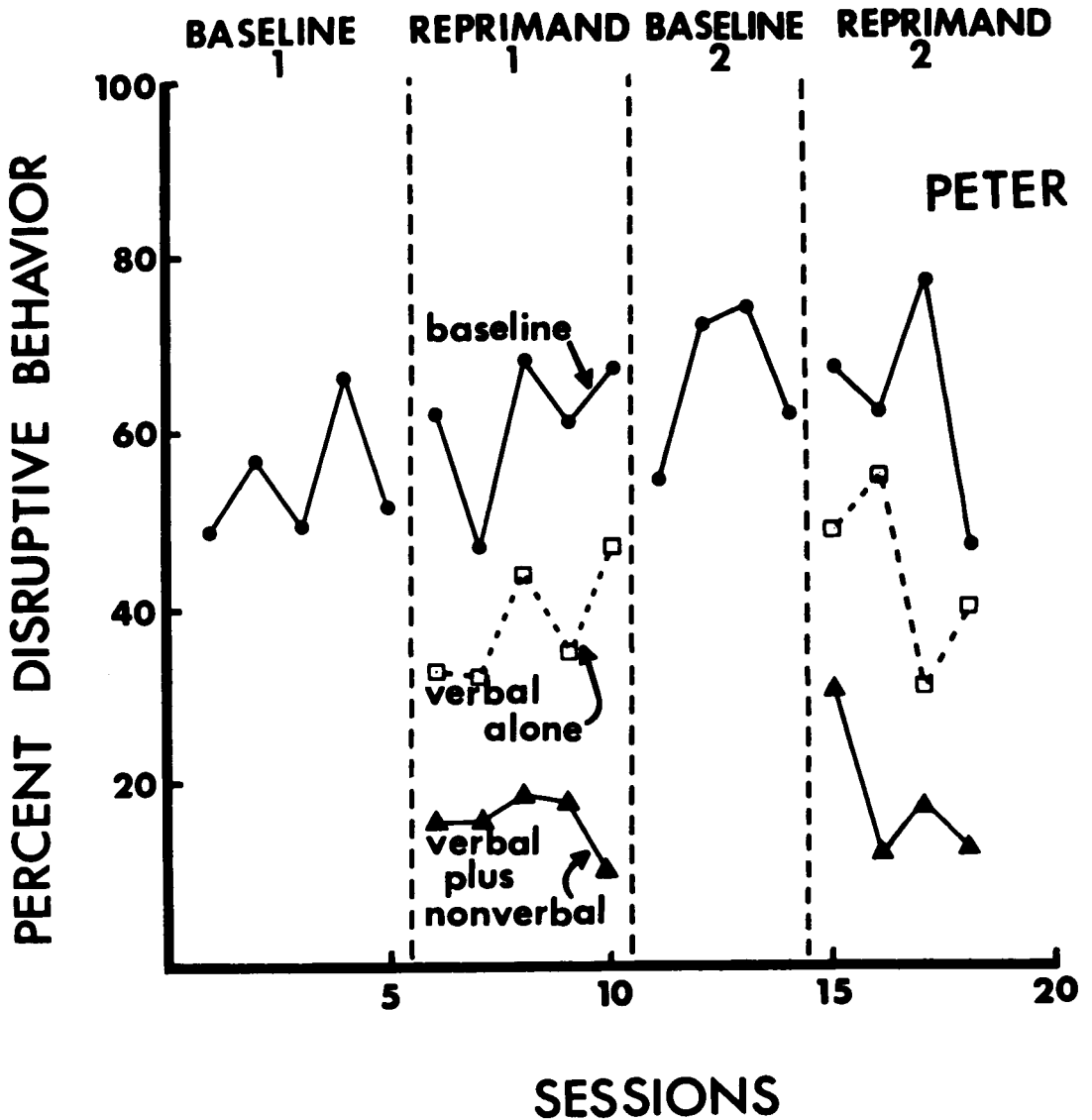


Fig. 2. The percentage of 10-sec intervals during which Peter was engaged in disruptive behavior during each session of the experiment. Separate curves in the Reprimand 1 and Reprimand 2 phases denote behavior during baseline, verbal reprimand alone and verbal plus nonverbal reprimand conditions.

affected if such an effect had occurred. Contrast effects have never been observed to produce differences where none previously existed. Instead they tend to magnify the magnitude of existing differences. In this regard contrast effects, if they can be produced, can assist the researcher in detecting differences between treatments. Three ways of increasing the likelihood of obtaining a contrast effect when using an alternating treatment design are: to keep the

durations of each condition brief; to associate each condition with independent discriminative stimuli; and to alternate the various conditions several times during each session.

The results of this experiment demonstrate the superiority of reprimands delivered in conjunction with the nonverbal aspects of eye contact and touch. One other variable that may influence the efficacy of a teacher's reprimand is the distance between the teacher and the target

student when the reprimands are delivered. The purpose of the following study was to examine the effect of proximity on reprimand efficacy.

## EXPERIMENT 2

### METHOD

#### *Participant and Setting*

Robert, a 9-year-old boy, participated in this experiment while he attended a fourth grade class in an inner city school. Robert was identified by his teacher as having behavioral problems. Robert was seated in the last seat of the first row of the classroom. He was observed during a daily 45-min math period.

#### *Apparatus*

Sound level readings were recorded using a General Radio model 1565-B sound level meter set to the "C" scale.

Prior to the first session of the experiment, small pieces of masking tape were placed on the floor under each student's desk. Before beginning each session the teacher asked the students to align their desks with these marks, thus guaranteeing that each desk always occupied the same position in the room during each experimental session.

Prior to the first session, additional 4-cm long pieces of tape were placed on the floor at 3-m intervals in order to serve as cues for judging the teacher's distance from the target student. These pieces of tape traced the outlines of two concentric semicircles with radii of 1 m and 7 m originating at the target student's desk.

#### *Measures*

All measurement procedures were carried out in the same manner as described in the preceding experiment. The mean percent agreement on the occurrence of disruptive behavior averaged 91% and ranged from 82% to 95%. Agreement on the nonoccurrence of disruptive behavior averaged 91% and ranged from 80% to 99%. The mean percent agreement on occurrence and non-

occurrence of reprimands to the target student was always 100%.

In addition, observers recorded whether a reprimand was delivered from the 1-m or 7-m perimeter around the target student. Observers were always in perfect agreement about whether a reprimand was delivered from 1 or 7 m.

As in the preceding experiment, the teacher was instructed not to deliver any praise to the target student during the treatment sessions. Neither observer recorded any instance of praise throughout the experiment.

Since the purpose of this experiment was to determine the effect of proximity on reprimand efficacy, it was essential that the proximity of reprimands not be confounded with loudness. Therefore, twice during each reprimand condition two additional observers recorded the maximum and minimum sound level of each reprimand delivered. The teacher explained to the class that the observers were taking measurements affecting classroom design. Both observers sat approximately 1 m from the target student facing away from him. Since the target student sat at the end of the first row, this placed the observers at a desk facing a wall of the classroom.

Experiment 2 used an alternating treatments design (Barlow & Hayes, 1979) similar to that in Experiment 1. However, Experiment 2 differed in that baseline math sessions were 40 min long and reprimand phase sessions were each composed of two 20-min long reprimand conditions. No intervening baseline periods were conducted during reprimand sessions.

*Baseline 1.* During this phase, the teacher was instructed to avoid delivering any praises or reprimands to the target student.

*Reprimand 1.* During this phase, each session was divided into two successive 20-min periods. During the first 20-min period, all reprimands to the target student were delivered from one distance, either 7 m or 1 m. During the second 20-min period, all reprimands to the target student were delivered from the remaining dis-



tance. The order of these conditions was varied randomly from day to day.

Prior to beginning this phase, a practice session was held in order to train the teacher to deliver constant intensity reprimands from different distances. These sessions were held in the classroom, but when the children were absent. A sound level meter was placed on the target student's desk while the teacher moved from place to place, repeatedly delivering reprimands. Using the feedback provided by the meter and comments from the other experimenters, the teacher needed only a single 30-min training session to learn to keep the intensity of her reprimands constant. During this practice session, and during the subsequent experimental sessions as well, the teacher estimated her distance from the target student's desk by means of the masking tape markers placed on the floor at the beginning of the experiment.

Throughout the entire 40-min class period reprimands were delivered according to a variable interval 2-min schedule of punishment such that a reprimand was delivered following the first disruptive behavior occurring after 2 min on the average had elapsed. The teacher was signaled when to reprimand the target student by means of the procedure described in Experiment 1. However, rather than the wireless FM equipment used in Experiment 1, the observer signaled the teacher with a cough. The teacher then positioned herself at the appropriate distance from the target student and delivered the reprimand. Frequently, the teacher had to walk across the room to deliver reprimands in the 1-m condition since she often worked with students on the other side of the classroom. In these cases, after delivering the reprimand, the teacher returned to her original position in the classroom. In this way, proximity to the student during the reprimand was not confounded with proximity to the student throughout the condition as a whole. As further confirmation of the absence of this confound, observers noted the teacher's position in the classroom at the

end of each 60-sec interval. Tabulation of these results revealed that the teacher spent approximately the same amount of time in the target's half of the room during the 1-m reprimand condition as she did during the 7-m condition. Because the teacher spent much of her time helping students on the other side of the room who were having more difficulty with their math, it was only rarely that the teacher had to walk away from the target student to deliver a reprimand from 7 m.

The teacher was further instructed not to make eye contact or touch the child when delivering reprimands from 1 m so that these nonverbal variables would not be confounded with proximity. The teacher was also trained to deliver all reprimands according to a standard format which involved naming the child and instructing him to stop the particular form of undesirable behavior he was engaging in immediately (e.g., "Robert, stop making noises right now!").

*Baseline 2.* This condition was carried out in the same manner as the first baseline condition.

*Reprimand 2.* This condition was carried out in the same manner as the first reprimand condition.

## RESULTS AND DISCUSSION

Robert's percent disruptive behavior during all experimental conditions is presented in Figure 3. The results show that although reprimands had little effect upon disruptive behavior when they were delivered from 7 m away, they produced a marked reduction when delivered from a distance of 1 m. Hence, it is clear that the proximity of the teacher was an important factor influencing the effectiveness of reprimands in reducing Robert's misbehavior. There are several possible reasons why reprimands might be expected to lose their effectiveness as the distance between the punishing agent and recipient increases. First, it is possible that the

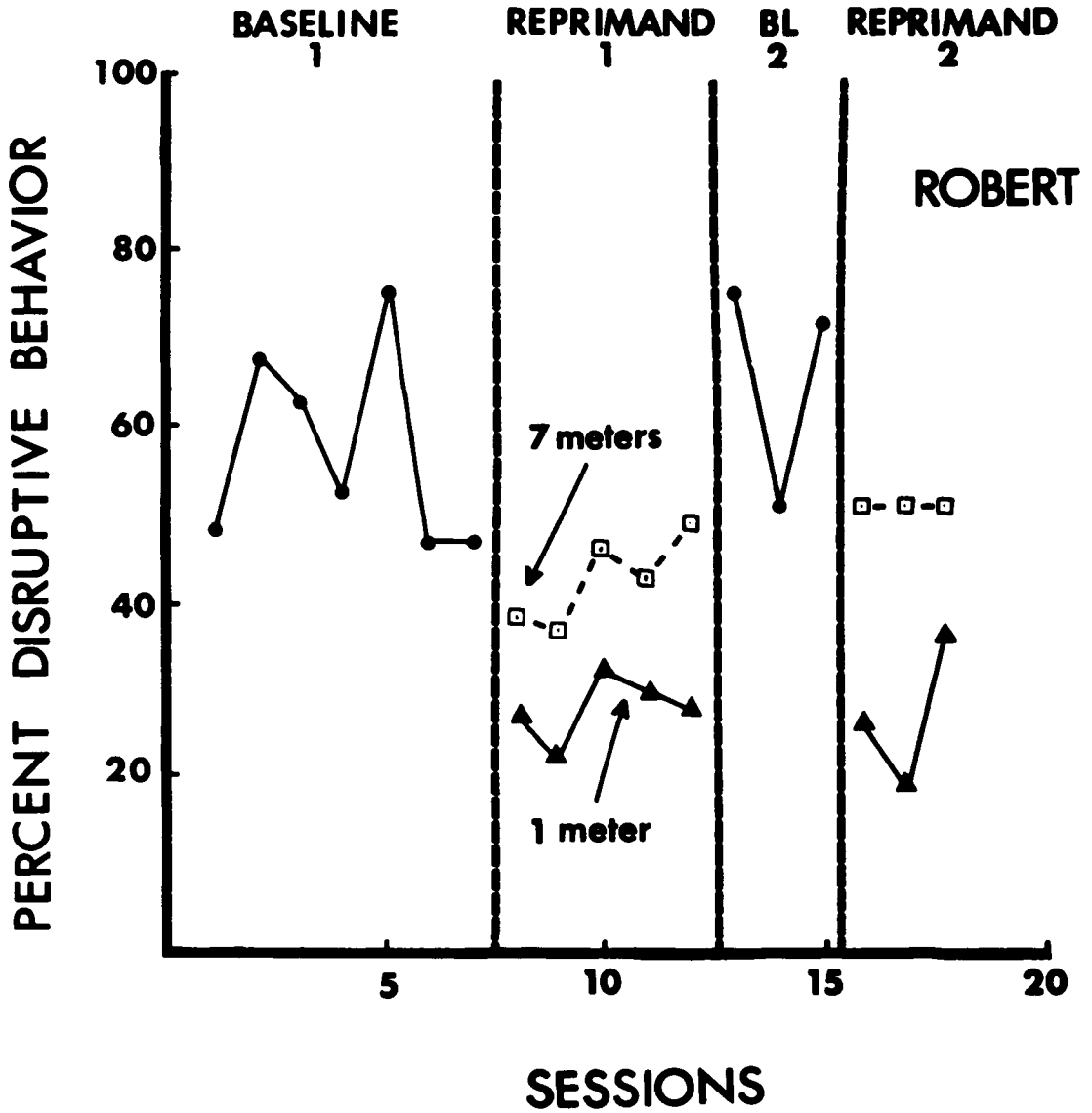


Fig. 3. The percentage of 10-sec intervals during which Robert was engaged in disruptive behavior during each session of the experiment. Separate curves in the Reprimand 1 and Reprimand 2 phases denote performance during the 1-m and 7-m conditions.

reprimands delivered at a greater distance are less intense. However, sound level readings obtained during the reprimand conditions reveal little difference in reprimand intensity delivered at the two distances. Mean sound level readings of reprimands during the 1-m and 7-m conditions were 66 db and 66.3 db, respectively. Since these results show that intensity was not confounded with proximity it is not possible that this factor could have influenced the results.

A second explanation involves the student's hypothetical history of reprimands. It is possible that, when misbehavior persists, reprimands delivered from nearby are more often backed up with other forms of punishment than reprimands delivered from further away. One reason that reprimands delivered from far away may be backed up less frequently is that doing so probably requires more effort and foresight.

One variable that was confounded with the

1-m reprimand condition was the teacher's walking toward the student. Since the teacher was often on the other side of the classroom when reprimands were to be delivered, she often had to approach Robert in order to reprimand him from 1 m away. It is possible that the approach aspect of close reprimands is an important variable influencing the efficacy of close reprimands. Unfortunately, it was not possible to control for this factor since locating the teacher closely during the entire 1-m condition would have confounded the teacher's overall proximity with her proximity at the time of near and far reprimands. In other words, it is possible that a student would have misbehaved less merely because the teacher remained 1 m away throughout the entire period. One way to determine the relative contribution of each factor in future research would be to compare the teacher's approach alone with the teacher's approach plus reprimands.

Finally, the results of this study should be viewed with a certain degree of caution because only one student participated. Further replication is required in order to determine the generality of this effect.

The results of this and the preceding experiment demonstrated that nonverbal aspects of reprimands and teacher proximity can influence the effectiveness of reprimands. The purpose of the final experiment was to examine whether reprimands delivered to one student can influence the behavior of an adjacent peer.

## EXPERIMENT 3A

### METHOD

#### *Participants and Setting*

Two fifth-grade boys were selected for this experiment. The class was taught by the third author. It was in a low socioeconomic multi-racial area of Halifax, Nova Scotia, and contained 20 students. John and Russel were selected because both the teacher and a preliminary assessment carried out by the experimenters identified the two boys as the most disruptive

students in the classroom. An examination of their work indicated that neither student was working at his capacity. John and Russel were seated next to each other prior to beginning the study. Although the teacher did not judge them to be close friends, they did interact with each other on a daily basis in school. Both boys worked independently at their own desks on their assignments.

#### *General Procedure*

Each day the teacher assigned work to the entire class from the math text (Heath Elementary Mathematics—Canadian Metric Edition). Assignments were to be completed during the 30-min math period. The length of each daily assignment was determined by the recommendation of the teacher's manual which accompanied the textbook. In order to keep the work as comparable as possible from day to day, only units that required computation were assigned to the students.

#### *Measures*

*Disruptive behavior.* Disruptive behavior consisted of any of the following: talking out of turn, making noises, wandering around the room, playing with or throwing instructional material, and fighting. A partial interval recording procedure was used for measuring this behavior such that a student was scored as disruptive whenever any of these behaviors was observed during a 10-sec observation interval.

A second independent observer also recorded disruptive behavior for the entire 30-min period during two sessions of each condition. Both observers began recording at a designated signal at the beginning of the period and stopped at the end of the period. Both observers sat at the back of the classroom and approximately 3 m apart.

The percent interobserver agreement on the occurrence of disruptive behavior was calculated by dividing the number of times both observers agreed on its occurrence by the number of times they agreed or disagreed on its occurrence. Similarly, interobserver agreement on the nonoccur-

rence of disruptive behavior was calculated by dividing the number of times both observers agreed on its nonoccurrence by the number of times they agreed or disagreed on its nonoccurrence. The mean percentage of agreement on the occurrence of disruptive behavior was 90% and ranged from 77% to 96%. The mean percentage of agreement on the nonoccurrence of disruptive behavior was 89% and ranged from 70% to 96%.

*Assignment completion.* Immediately following each session, the teacher collected the students' math scribblers and counted the number of assigned problems completed by the target students. Students who had not finished the entire assignment were usually required to do so during the rest of the school day or at home. The percentage of the assignment completed during the designated math period was calculated by dividing the number of problems completed during the period by the total number of problems assigned. Interscorer agreement was calculated on assignment completion during one session of each condition and was always 100%.

*Percentage of assignment correct.* The percentage of the assignment completed correctly was calculated each day (usually during the free period that followed math). This percentage was calculated by dividing the number of problems completed correctly by the total number of problems completed. Interscorer agreement was calculated on the percentage of problems completed correctly during one session during each condition and was always 100%.

*Teacher's reprimands.* The teacher's reprimands to target students and other members of the class were recorded separately along with the interval during which they occurred. Reprimands were defined as statements that named a student and told the student to stop engaging in a misbehavior. Examples of reprimands are "John, stop walking around the class" and "Russel, stop bothering Clyde." Interobserver agreement on the occurrence and nonoccurrence of reprimands was calculated independently twice

during each condition. Mean percent agreement on the occurrence of reprimands was 98.6% and the mean percent agreement on the nonoccurrence of reprimands was 99.9%.

*Teacher's praise.* Praises delivered by the teacher were recorded in the same manner as were reprimands. Praises were any statements that named a student and commented on something the student was doing well. Examples of praises are "Good, John, you're working very hard now" and "Russel, you're doing a fine job on your math today." The teacher was instructed not to praise either boy's behavior during math throughout the entire experiment. Observers only noted praises on a few instances throughout the experiment.

#### *Experimental Design*

A reversal design was used in this experiment. After stable baseline performance was obtained for both John and Russel, reprimands were made contingent on John's disruptive behavior according to a variable interval 2-min (VI 2-min) schedule of punishment. During this condition, Russel's disruptive behavior was not reprimanded. After a return to baseline conditions, reprimands were again made contingent on John's disruptive behavior. Next, baseline conditions were reinstated. Finally, the same sequence of conditions was repeated with the exception that reprimands were only made contingent upon Russel's behavior.

*Baseline 1.* During this condition, the teacher was instructed not to praise or reprimand either John or Russel, and the teacher was instructed to conduct class in her usual manner.

*Reprimand John 1.* During this condition, John's disruptive behavior was reprimanded by the teacher on a VI 2-min schedule of punishment. The teacher was signaled when to deliver reprimands by means of the procedure employed in Experiment 2. The signal varied from day to day, and included coughing, clearing the throat, scratching the head, nodding, and opening a book. At no point during the study did the

students indicate in any way that they were aware that the observer was signaling the teacher. Furthermore, a questioning of the students by the teacher at the end of the study indicated that the students were not aware of the signaling.

*Baseline 2.* This condition was carried out in the same manner as the first baseline condition.

*Reprimand John 2.* This condition was carried out in the same manner as the first reprimand John condition.

*Baseline 3.* This condition was carried out in the same manner as the first and second baseline conditions.

*Reprimand Russel 1.* During this condition, Russel's disruptive behavior was reprimanded on a VI 2-min schedule of punishment while John's misbehavior was ignored. This condition was similar to the reprimand John condition in all other respects.

*Baseline 4.* This condition was similar to all the previous baseline conditions.

*Reprimand Russel 2.* This condition was carried out in the same manner as the first reprimand Russel condition.

## RESULTS AND DISCUSSION

The results of this experiment are presented in Figures 4 and 5. The results in Figure 4 show that John engaged in less disruptive behavior when either he or Russel received reprimands for disruptive behavior. Similarly, Russel engaged in less disruptive behavior when either he or John received reprimands for disruptive behavior.

Furthermore, the amount of reduction in a given student's misbehavior was essentially the same when his neighbor was reprimanded as when he was reprimanded himself. Thus, the "spillover" seems to have been complete.

An examination of the data in Figure 5 reveals that the percent assignment completion increased for both John and Russel when John

received reprimands for disruptive behavior. When Russel received reprimands for disruptive behavior, his assignment completion improved while John's did not. The failure of John to show improvements in assignment completion when Russel's disruptive behavior was reprimanded seems to have been the result of his failure to return to baseline levels of responding during the second half of the experiment. The accuracy of both students' work remained consistently high throughout the experiment.

## EXPERIMENT 3B

### METHOD

#### *Participants and Setting*

Two girls in a second-grade classroom located in a middle income area of Dartmouth, Nova Scotia, participated in this experiment. The class contained 26 students. Jeanette and Natalie were selected because both the teacher and a preliminary observation carried out by the experimenters identified the two girls as the two most disruptive students in the classroom. Both students were assigned seats at the front of the classroom at two adjacent desks prior to beginning the experiment. These girls were judged by the teacher to be friends. Both pupils worked independently at their own desks on their assignments.

#### *General Procedure*

Each day the teacher assigned the class a story to be read and several questions taken from the story to be answered. The students were given 40 min each day to complete their assignment.

#### *Measures*

Disruptive behavior, assignment completion, percentage of assignment correct, teacher reprimands, and teacher praise were recorded in the same manner as described in the preceding experiment. Interobserver agreement on the occurrence of disruptive behavior averaged 86%

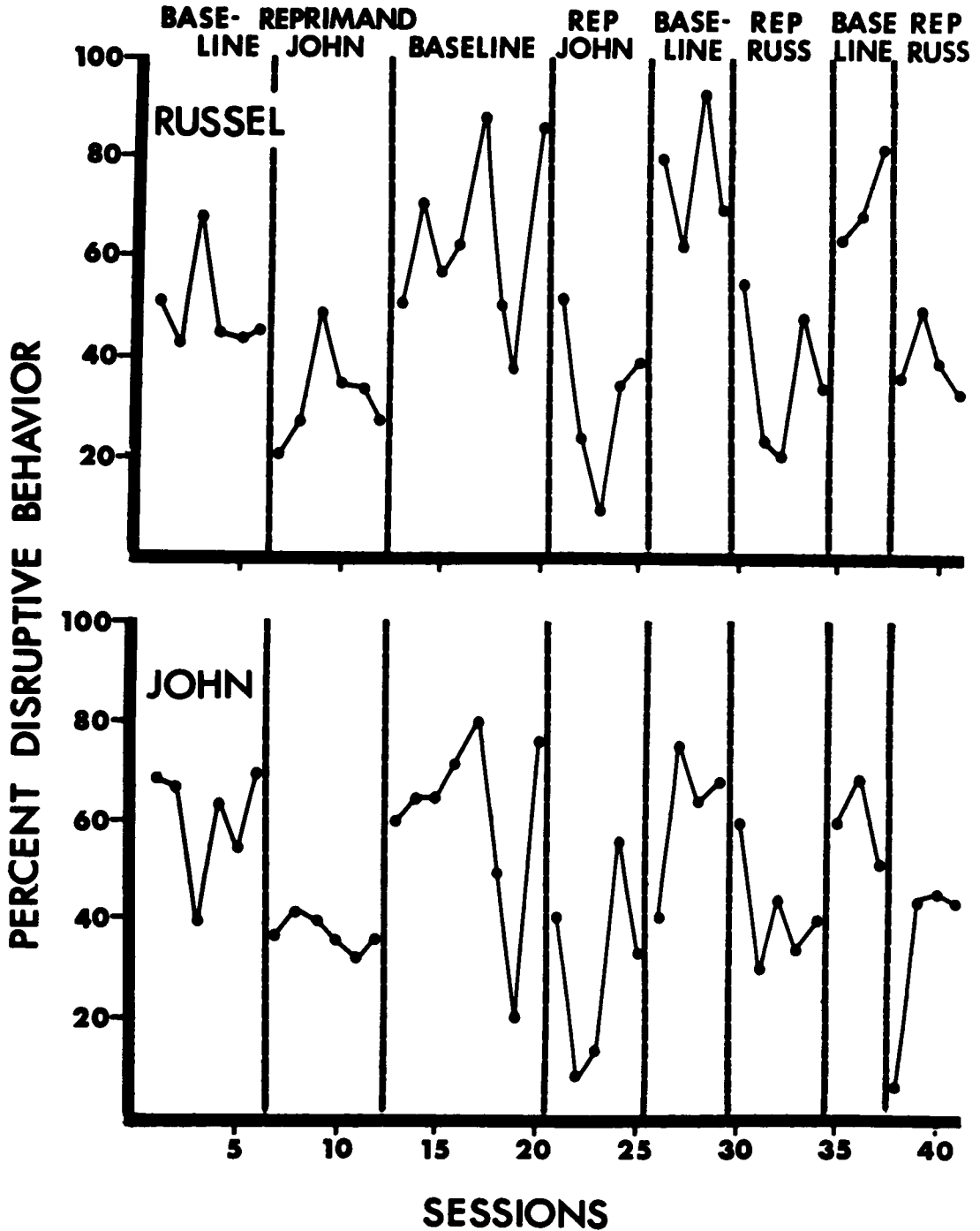


Fig. 4. The percentage of 10-sec intervals during which Russel and John were engaged in disruptive behavior during each session of the experiment.

with a range of 70% to 100%. Interobserver agreement on the nonoccurrence of disruptive behavior averaged 91% with a range of 79%

to 100%. Interscorer agreement on the percent assignment completed and the percent assignment correct were always 100%. The inter-

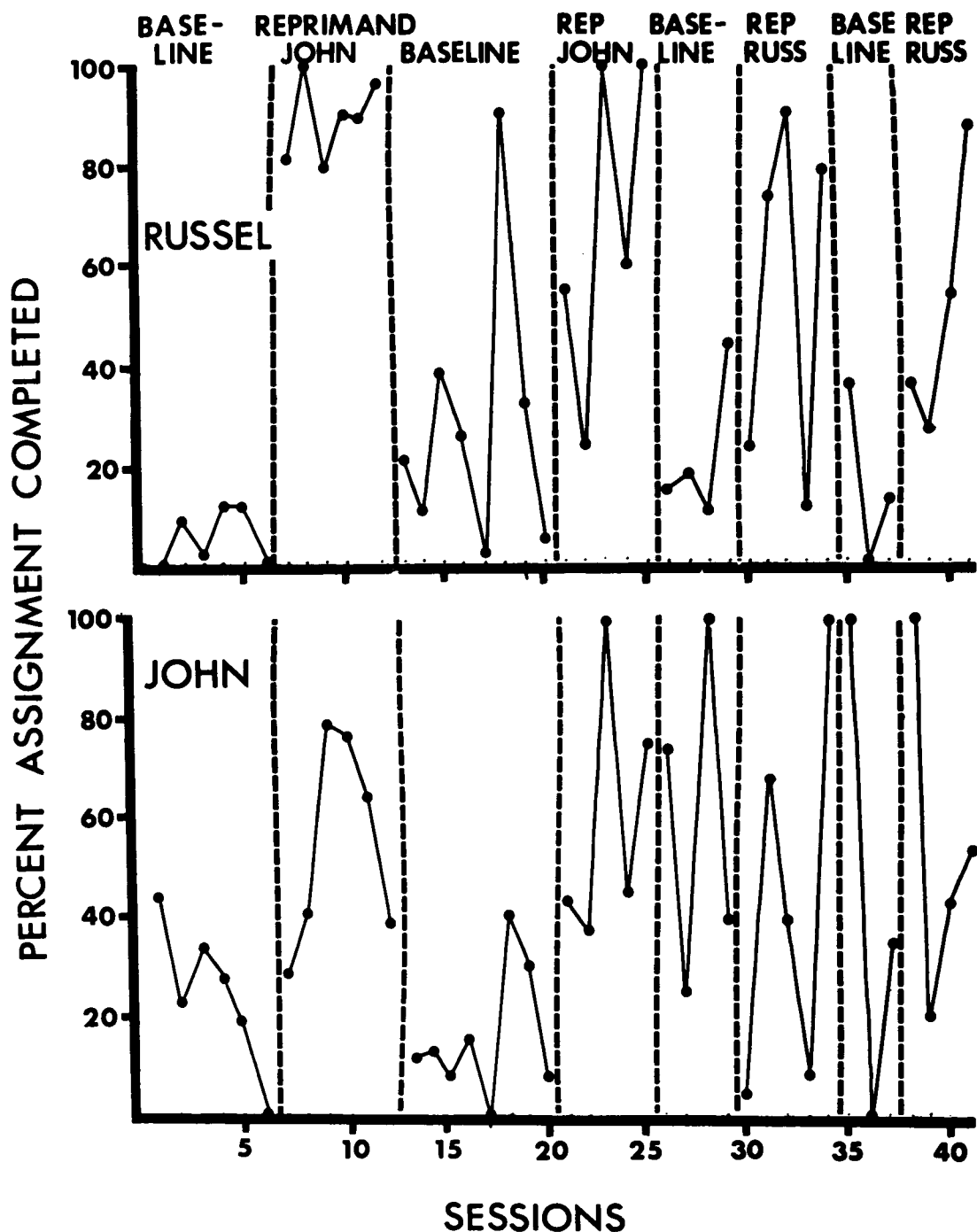


Fig. 5. The percentage of each daily math assignment completed by Russel and John during each session of the experiment.

observer agreement on the occurrence of teacher reprimands was 98.8% with a range of 95% to 100%. Interobserver agreement on the nonoc-

currence of teacher reprimands averaged 99.8% with a range of 99% to 100%. Both observers scored only three instances of praise delivered

to Jeanette throughout the experiment and none delivered to Natalie.

### Experimental Design

A reversal design was used in this experiment. After stable baseline performance was obtained for both Jeanette and Natalie, reprimands were made contingent upon Jeanette's disruptive behavior according to a variable interval 2-min schedule of punishment. During this condition, Natalie's disruptive behavior was not reprimanded. After a return to baseline conditions, reprimands were again made contingent upon Jeanette's disruptive behavior. The experiment was terminated after this treatment because the school year had come to an end.

**Baseline 1.** During this condition the teacher was instructed not to praise or reprimand either Jeanette or Natalie and to conduct the class in her usual manner.

**Reprimand Jeanette 1.** During this condition Jeanette's disruptive behavior was reprimanded by the teacher on a VI 2-min schedule of punishment. The teacher was signaled when to deliver reprimands using the same procedure as in the preceding experiment. As in Experiment 3A, a variety of signals was used.

**Baseline 2.** This condition was carried out in the same manner as the first baseline condition.

**Reprimand Jeanette 2.** This condition was carried out in the same manner as the first reprimand Jeanette condition.

## RESULTS AND DISCUSSION

The results of this experiment are presented in Figures 6 and 7. The results in Figure 6 show that both Jeanette and Natalie engaged in less disruptive behavior when Jeanette received reprimands for disruptive behavior.

The results presented in Figure 7 reveal that the percent assignment completion increased a small amount following the introduction of the reprimand Jeanette condition. Furthermore, the high level of assignment completion was maintained for the duration of the experiment. The

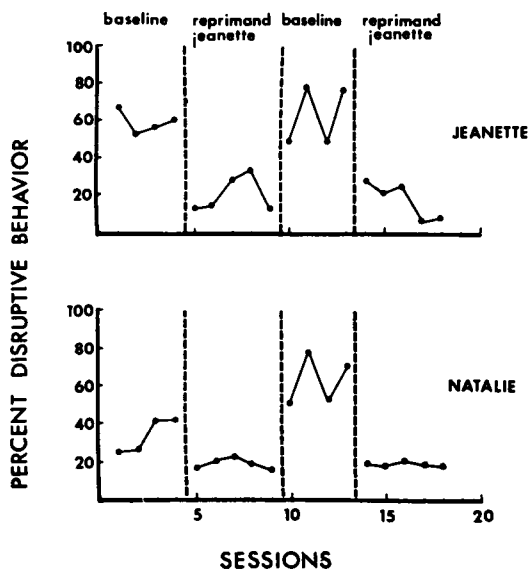


Fig. 6. The percentage of 10-sec intervals during which Jeanette and Natalie were engaged in disruptive behavior during each session of the experiment.

accuracy of both students' work remained high throughout the experiment. Although these results do not demonstrate that academic performance can be improved by reprimands delivered contingent upon misbehavior, they do

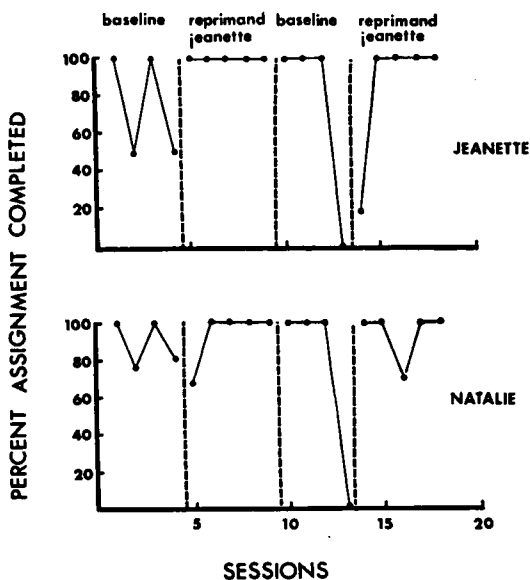


Fig. 7. The percentage of each daily reading assignment completed by Jeanette and Natalie during each session of the experiment.



illustrate how disruptive behavior can be a problem even when academic performance is not.

### GENERAL DISCUSSION

The results of these studies identified three factors that influence the efficacy of reprimands. The first study showed that nonverbal aspects of reprimands such as eye contact and a firm grasp potentiated the influence of verbal reprimands. The second study showed that reprimands were more effective when delivered from nearby the student than when delivered from across the room. The last studies showed that the delivery of reprimands to one student reduced the disruptive behavior of an adjacent peer.

These findings may explain why some classroom studies have found reprimands to be effective punishers (Hall et al., 1971; Jones & Miller, 1974; O'Leary et al., 1970; Sajwaj, Culver, Hall, & Lehr, 1972) while others have not (Madsen et al., 1968; Thomas et al., 1968). In all the studies reporting positive findings, either proximity, eye contact, physical contact, or a combination of several of these factors was included in the protocol for reprimand delivery. For example, Sajwaj et al. (1972) had teachers make eye contact and grab the child by the arms while delivering reprimands. Jones and Miller (1974) taught teachers to deliver reprimands in close proximity to the target student and to use a "facial expression and tone of voice consistent with disapproval." O'Leary et al. (1970) found soft reprimands delivered alongside the child to be most effective. It is possible that it was proximity, eye contact, and touch and not reprimand intensity that were responsible for these results. On the other hand, neither Madsen et al. (1968) nor Thomas et al. (1968) specified whether proximity, eye contact, or physically holding the children was part of their teacher's reprimand procedure.

Although this study has identified three important factors that can influence reprimand efficacy, there exist many more variables to be

analyzed. For example, it is not known whether the efficacy of eye contact and holding are directly related to how long these procedures are applied. In several reprimand studies that have obtained positive results, mothers were taught to stare at their children or hold their children while staring for durations of from 40 to 60 sec following the delivery of reprimands. By contrast, the teacher in Experiment 1 of the present study maintained eye contact and grasp only for the duration of the reprimand (approximately 3 to 4 sec). Other factors that may influence reprimand efficacy are verbal content, tone of voice, and pairing with the physical termination of the reprimanded response.

It should be noted that no reprimands were delivered during the baseline conditions in all three experiments. This was done so that reprimands could be delivered at their natural rate during treatment conditions. This allowed for a comparison of the percentage of disruptive behavior in the presence of reprimands delivered at their usual rate with the percentage of disruptive behavior in the absence of reprimands. Had the teachers been permitted to deliver reprimands during the baseline condition at their usual rate it would have been more difficult to assess the effects of the various reprimand conditions. Furthermore, it would not have been clear whether reprimands actually decreased the level of behavior since response rate in the absence of reprimands would have been unknown. Although the VI 2-min schedule used in all experiments approximated the natural frequency of reprimands delivered by the teachers prior to the initiation of the experiments, it is unlikely that the teachers actually deliver reprimands according to a true VI schedule on their own. It is more likely that teachers tended not to notice misbehavior until its intensity reached levels that made it readily apparent before delivering reprimands. However, it was impossible to replicate the true schedule of reprimands in a naturalistic experiment.

Similarly, praise was withheld throughout the study in order to obtain a greater degree of ex-

perimental control. Although the absence of the teachers' praise during these experiments may seem to have been contrived, it is interesting to note that only one of the three teachers delivered any praise for appropriate behavior prior to beginning the experiments. Hence one could argue that the absence of the teachers' praise was a natural condition in the two remaining classrooms. Finally, it should be pointed out that all three teachers were taught how to use praise at the end of the experiment in order to improve their classroom management skills.

Although this study and many of the previously cited studies have shown that reprimands can be effective, it should be noted that reprimands, if used improperly, can also produce unwanted side effects. In this regard, reprimands are like any other punishment procedure. For example, Redd, Morris, and Martin (1975) compared the effects of reprimands, praise and a nonreactive adult on the color-sorting behavior or arithmetic problem completion of young children. Their results indicated that although reprimands were the most effective procedure, the adults who were associated with their exclusive use were less preferred by the children than the adults who delivered praise or remained neutral. Similarly, Willner, Braukmann, Kirigin, Fixsen, Phillips, and Wolf (1977) found that adolescents disliked it when adults described only what they had done wrong. These findings should serve as a warning to those who would attempt to manage behavior entirely through the use of reprimands.

The results of the above-mentioned studies suggest that it is wise to maintain a high level of praise when using reprimands in order to ensure that the social relationship between the teacher and his or her class will be a positive one. Although the results of these studies show that reprimands can often be very effective when properly delivered, it would be unwise to base a strategy for classroom control upon their exclusive use. Instead, reprimanding should be viewed as a technique that can often be used in conjunction with programs that place primary

emphasis upon forms of reinforcement such as praise. When used as part of a program that is heavily weighted in favor of reinforcement it is highly unlikely that undesirable side effects would occur. Still it should be noted that little research has examined the interplay between approval and disapproval. Therefore it would be wise to proceed cautiously when using reprimands just as one would when using any other form of punishment.

It should also be noted that a science of behavior ought to examine societal practices objectively rather than basing its assumptions on superstition or poorly controlled research. The normative data available strongly support the assertion that teachers rely primarily upon reprimands to control problem behavior in the classroom. Therefore, an analysis of factors influencing the efficacy of reprimands and their general effects upon behavior is long overdue.

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