

*A COMPARISON OF THREE METHODS FOR ELIMINATING  
DISRUPTIVE LUNCHROOM BEHAVIOR<sup>1,2</sup>*

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Three methods of controlling disruptive lunchroom behaviors of elementary school children were compared: basic modification procedures, basic modification procedures plus punishment essays, and basic modification procedures plus mediation essays. During an in-service workshop, six paraprofessional lunch aides received training in these methods to modify three classes of disruptive lunchroom behaviors. They then applied the methods in a counter-balanced design. Fourth- and fifth-grade elementary school pupils were observers and made reliability counts of the target misbehaviors under the various methods. Results indicated that during the periods when aides had been directed to use basic modification procedures plus mediation essays, target misbehaviors were almost totally eliminated and occurred significantly less often than during the periods when they had been directed to use basic modification procedures alone or basic modification procedures plus punishment essays.

Lunch-period group-management problems are becoming increasingly prevalent in city elementary schools as more children eat their lunches at school, rather than at home. The methods of managing lunchroom behavior include counselling, parent conferences, student council programs, adult lecturing, and controls such as detention after school, suspension of lunch privileges, and physical punishment. Yet, these methods often fail to produce lasting effects.

Frequently, pupil misbehavior can result in lunch aides becoming discouraged, responding antagonistically toward the children, or even resigning their jobs. The classroom teacher receiving the pupils after lunch often has the added task of reestablishing appropriate behaviors.

Classroom studies demonstrate that the fre-

quency of deviant behaviors of both individuals and groups can be reduced by using operant principles that make reinforcers contingent upon appropriate responses (Blackwood, 1971; Hall, Fox, Willard, Goldsmith, Emerson, Owens, Davis, and Porcia, 1971; Herman and Tramontana, 1971; Schutte and Hopkins, 1970; Zimmerman and Zimmerman, 1962). Parents (Zeilberger, Sampen, and Sloane, 1968), paraprofessionals (Miller and Schneider, 1970), teachers (Madsen, Becker, and Thomas, 1968), and counsellors (Hinds and Roehlke, 1970) have applied operant techniques successfully.

Although the reported decreases in the frequency of disruptive behaviors are significant and impressive (*e.g.*, a 68% decrease reported in Madsen *et al.*, 1968), a number of misbehaviors often continue to be emitted. A method involving verbal mediation training to teach self-control gives promise of reducing further the frequency of pupil misbehavior (Blackwood, 1970, 1972). Speech is analyzed as verbal chaining, which produces stimuli that are both conditioned reinforcers and discriminative stimuli. From this analysis of speech, one can suggest a method of teaching self-control with mediation essays, in which students, when tempted to misbehave, are taught to describe to

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<sup>2</sup>Reprints may be obtained from Evelyn MacPherson, Principal, Mound School, Cleveland, Ohio 44105.

themselves the consequences of appropriate and inappropriate behavior.

The present study developed a plan for using mediation essays to help eliminate unacceptable lunchroom behaviors in elementary school children. The results of using a basic modification plan were compared with those of using a basic modification plan plus mediation essays and with those of using a basic modification plan plus punishment essays.

## METHOD

### *Subjects and Setting*

The study, conducted at Mound Elementary School, Cleveland, Ohio, involved 221 children, 6 to 13 yr of age. The subjects were allowed to eat home-prepared lunches at school as a convenience to working parents. The subjects were grouped by age level into six lunchrooms with approximately 38 children each. The hour-long lunch period was broken into three time segments: (a) lavatory period, 10 min, (b) eating time, 20 min, and (c) recreation, 30 min.

Six aides, housewives in the neighborhood, were hired by the principal to supervise the noontime program, based upon the principal's judgement of their concern for children and their ability to interact effectively with them (*cf.* Sandler, *unpublished*). The aides had no previous formal training in group management.

### *Design*

To determine the misbehaviors most disturbing to the aides, a six-point rating scale of 10 lunchtime misbehaviors was submitted to each aide. The three misbehaviors receiving the highest mean rating, *talking while the aide speaks*, *out-of-seat*, and *quarreling*, were selected as the target misbehaviors. *Talking while aide speaks* involved a child speaking, shouting, or whispering while the lunch aide gave a group direction or made an announcement. *Quarreling* was defined as a child verbally or physically annoying another child, disrupting an activity by throwing

or snatching a player's equipment, name calling, or shouting verbal disagreements while eating, or engaging in one of the reinforcement activities. *Out-of-seat* was defined as a child having no contact between his seat and his chair. *Out-of-seat* was not coded as misbehavior when the subject was granted permission by the aide to move from one activity to another, or when the activity required movement.

The six lunchrooms were divided into three groups with two classrooms each. In each group, the three conditions, basic modification plan (BMP), basic modification plan plus punishment essays (BMP + PE), and basic modification plan plus mediation essays (BMP + ME), were presented in different sequences. Each lunchroom was randomly paired with another, and the pair was then randomly assigned to one of the experiments.

Following a nine-day Baseline period, the paired groups were exposed in varying sequences to each condition as follows: Group I: BMP + PE, BMP, BMP + ME; Group II: BMP, BMP + ME, BMP + PE; Group III: BMP + ME, BMP + PE, BMP. Each condition in the sequence lasted 10 days. All groups were then to complete the study with 40 more days of condition BMP + ME, a five-day Postcheck with condition BMP + ME, 40 days more of condition BMP + ME, a five-day Reversal period, and a second five-day Postcheck with condition BMP + ME. Continuous frequency counts of the target misbehaviors were planned for all periods except for the 20 days of condition BMP + ME immediately before, and the 40 days of condition BMP + ME immediately after, the first Postcheck.

Group discussion of the three target behaviors was conducted by the aide in each lunchroom immediately following the Baseline period. The behaviors were specifically defined for the students and concrete examples were given by the aide.

After the second Postcheck, the questionnaire used to select the target misbehaviors was again administered to the aides.

The third experimental condition was shortened to five days at the request of the aides in Experiments II and III. They had obtained relief from disruptive behaviors with Condition BMP + ME, had found these behaviors increasing in subsequent conditions BMP and BMP + PE, and had requested that the third condition be limited to one week so they could implement condition BMP + ME.

*Aides' training program.* Individually, the aides were asked to learn "ways to help your lunch children behave better and relieve you of settling so many noontime disturbances". Unanimously, the aides agreed to participate in fourteen 15-min operant conditioning in-service training sessions conducted by the building principal. Basic behavioral principles relating to each condition were discussed before they were applied. Topics included causes of misbehaviors, response acquisition and extinction, reinforcement and reinforcers, satiation and deprivation, punishment, and mediation. Appropriate portions of Blackwood's (1971) text were paraphrased and used in the discussion and study sessions.

Although some of the training sessions overlapped with the experiments, premature application was discouraged by requesting that the procedures not be applied until the treatment condition and by not making available the essay materials until the appropriate condition.

*Observer training.* Twelve elementary students, age 9 to 11 yr, were selected from teacher recommendations to record the frequency of the target behaviors. They were paired and trained in observational techniques during the four pre-Baseline practice sessions conducted in the lunchrooms. Tokens, made available contingent upon appropriate observer performance, could be exchanged for a variety of stimuli including early lunch period, free time, extra library and gym, candy and snacks, milk treats, and the use of movies, film strips, a tape recorder, listening center, TV, and radio.

During the planning stage and Baseline condition, the observers were rewarded both socially

and with tokens immediately after each session. They were switched to a variable-interval schedule following Baseline.

*Recording procedures.* The observers were randomly assigned by pairs to each of the lunchrooms. The two observers sat at opposite sides of the room, with an unobstructed view of the children and the aide. They avoided eye contact or interaction with the children during recording periods. During Reversal and Postcheck<sub>2</sub>, the observers were randomly regrouped and re-assigned to different lunchrooms as a reliability check.

For each 60-min lunch period during the study, each observer independently recorded each occurrence of the target behaviors.<sup>1</sup> Each recording sheet was divided into three rows of 12 squares each, one row for each target behavior. Each box in the row was numbered 1, 2, 3 . . . 11 corresponding to the figures upon a clock face to simplify recording of the target behaviors. One tally mark was made for each occurrence of a defined misbehavior in the appropriately numbered box corresponding to the 5-min interval during which it was emitted.

### *Conditions*

*Baseline.* During Baseline, the aides were requested to manage the children as before, not introducing the procedure discussed during the workshops.

*Basic Modification Plan (BMP).* Three basic procedures were in effect in this condition. (1) Positive reinforcement, the withdrawal of reinforcement, aides' attention, aides' praise, and special-privilege activities were to serve as reinforcers and were to be made contingent upon a pupil's appropriate behavior. (2) Reinforcers were to be withheld for the day if a child continued to emit the same type of misbehavior after once being instructed to stop. The special-privilege reinforcers included gym time, movies,

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<sup>1</sup>The various reinforcement strategies were, of course, implemented by the aides on the basis of their perception of pupil target behavior and not on the basis of the observers' tally.

outdoor play, TV, children's card games, lotto, checkers and chess, weaving, model building, drawing, clay modelling, dance sessions, dramatizations, and story time. (3) If a child continued to emit the same target misbehavior for more than three times during any one session after being verbally reminded and/or silently signalled by his aide to stop, a timeout was introduced. The child was directed by the aide to a clean, heated, well-lit but windowless 8 by 10 ft (2.4 by 3 m) former storeroom, adjacent to the lunchrooms, equipped only with a chair. He was told he could report back to his aide for permission to re-enter the lunchroom when he could control his misbehavior. The aides were instructed to limit timeout to a maximum of 5 min for the 9- to 12-yr olds and 3 min for the younger children. However, the aides never had to return to the timeout room to bring a child back. All such children returned to their aides before the unannounced time limit.

*Basic Modification Plan plus Mediation Essays (BMP + ME).* In mediation training, a child is instructed to verbalize the consequences of his two alternative behaviors at the time he is tempted to misbehave. The mediation essays present a catechism of four questions with answers (Blackwood, 1970) that itemize the consequences of both the specific misbehavior and acceptable behavior. The first question and answer concerns the definition of the misbehavior. This is followed by three more questions and answers, which set up a discrimination procedure by (a) itemizing the aversive consequences of the behavior, (b) describing the behaviorally stated appropriate response, and (c) describing the consequences of appropriate behavior.

Six different essays were constructed for each of the three target behaviors. Thus, each grade level from one through six had a graded, vocabulary controlled essay (Botel, 1962). Each of the six essays emphasized the gain and loss to the child of playing with lunch mates, using the gym and play yard, making friends, and pleasing his parents.

This is a copy of the third-grade mediation

essay dealing with the target behavior "talking while the aide is speaking":

"What did I do wrong?"

I talked while the aide was talking.

What things happen I don't like when I talk out?

I don't have any fun at lunch when I talk out. I must write these answers. I won't have time to go to the gym. The aide cannot take me outside. I can't play with the balls.

What should I do?

I should be quiet when the aide is talking.

What pleasant things happen when I quietly listen to the aide?

I can do fun things I like. I can go to the gym and play games. I can go outside with the other kids. I can play with the balls. I may be picked to help the aide. Mother and Father will be happy when they hear I am good. The kids will like me and want me to be their friend."

On the first day that this condition was initiated, the aides defined the target behaviors with the children and explained and discussed with them the procedures to be used.

Each time a child emitted a target misbehavior during this condition, he was requested not more than twice by the aide to improve his response. If he persisted in that particular misbehavior, an essay was assigned by the aide. The essay was to be copied and returned by the end of the hour. Failure to complete the assignment or arguing with the aide resulted in a second assignment. If two copies of the essay were not returned promptly, the school office notified the parents that lunch privileges might be suspended unless the child completed the assignment on the third day.

This essay-copying assignment could be assigned to a child three times per target behavior. When further assignment was needed, the child was to paraphrase the essay for the second three infractions. For the third set of infractions, the

child was to compose the essay from memory. The treatment plan provided role-playing as a procedure to follow for the tenth and subsequent infractions.

During this condition, 82 mediation essays were assigned: 26 for talking while the aide speaks, 35 for out-of-seat, and 21 for quarreling. Of this total, four children were assigned to make two copies of the same essay; none was assigned to make three copies.

*Basic Modification Plan plus Punishment Essays (BMP + PE).* Traditionally, many teachers have imposed additional work tasks as punishment for misbehaving students, anticipating that the extra task will result in a change in the child's behavior. Such tasks as assigning extra math problems, writing spelling words 10, 20, or more times, or copying sentences such as "I will not chew gum in school" 50 times or more have not been very effective in eliminating the punished behavior. The authors have failed to find any evidence in the psychological and educational literature to support the effectiveness of such methods. To evaluate the deterring power of this type of assignment, this condition used the basic modification plan plus punishment essays.

Six different punishment essays were constructed, one for each grade level. The material used was selected from a health text and several children's trade books available in most school libraries. During this condition, 132 punishment essays were assigned: 31 children being assigned to make two copies of the same essay and 17 to make three copies.

The procedure to be followed by the aides in assigning punishment essays was identical to that used with the mediation essays; however, paraphrasing, memorization, and role-playing were not to be used in this condition.

Both punishment and mediation essays for grades one through three were double-spaced and mimeographed, using primer-size type. The upper-grade essays used elite-size type and were single spaced. All essays were shorter than one page.

*Postcheck<sub>1</sub>.* Postcheck<sub>1</sub> was made beginning on the seventy-fifth day, four weeks after the mediation condition ended, and lasted five days.

*Reversal.* This five-day condition began on the one hundred and twentieth day of the study, after an eight-week suspension of observations. The aides, at first reluctant to withhold reinforcement, were encouraged by the principal to reinstate the management methods they had used during the Baseline condition of often verbally reprimanding the child contingent upon inappropriate responses and frequently ignoring appropriate behaviors.

*Postcheck<sub>2</sub>.* Postcheck<sub>2</sub> was initiated on the one hundred and twenty-fifth day, immediately following Reversal, and lasted for five days.

## RESULTS

*Interobserver reliability.* Since the daily frequency of one target misbehavior in one lunchroom varied from a low of zero to a high of 184, two separate reliability indexes were deemed necessary: one for the cases where the frequency of any one target behavior for the day was tallied by either pupil observer as five or more, and the other for those cases where the frequency count was below five for both observers.

One index was calculated by noting the number of 5-min intervals on the day in question during which observations were made, and then counting the number of these intervals in which the two observers agreed on the exact frequency—including zero—of the target behavior. This latter number of intervals was then divided by the former number of intervals to obtain the index.

To check the possibility that the partners in pairs of observers might have come to agree erroneously on the scoring of the occurrence or nonoccurrence of target events, the pupil observers were assigned to different pairs during the final two weeks of the study. The indexes of reliability for the new pairs were similar to those of the original pairs.

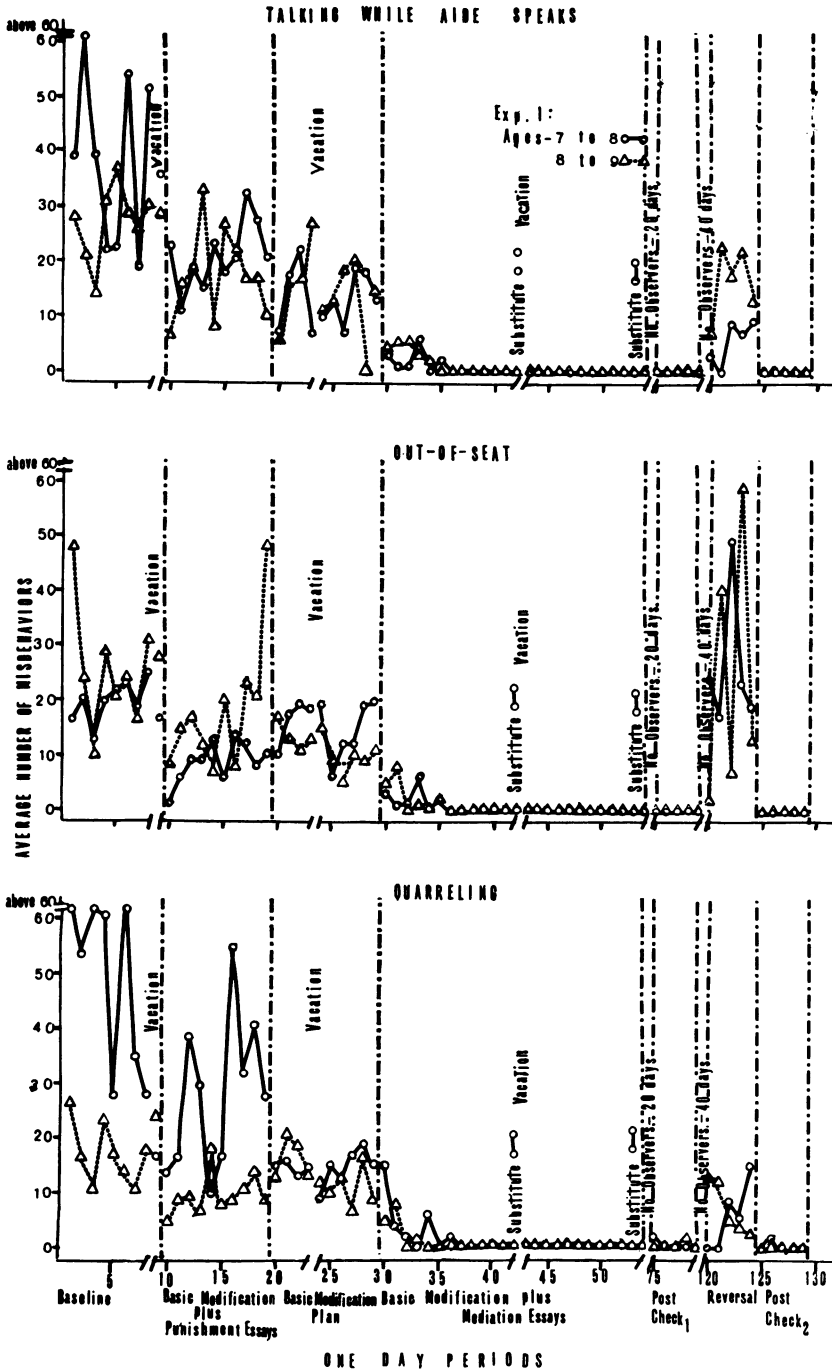


Fig. 1. Average number of misbehaviors per session for each of the three target behaviors of Experiment I. Three separate vacation periods occurred during the duration of the study; *i.e.*, two days between the ninth and tenth days (Thanksgiving), 10 days between the twenty-third and twenty-fourth days (Christmas), and six days between the forty-second and forty-third days (Spring Break). Additional breaks in observing and tallying occurred for 20 days (period 55 through 74) preceding Postcheck<sub>1</sub> and 40 days (period 80 through 119) between Postcheck<sub>1</sub> and Reversal. The baseline point above 60 for talking while the aide speaks for the younger children reached an average of 61. For the same age group, the baseline data for quarreling behavior ranged from 61 to 87, with an average of 74.

Of the 1242 (69 days × 6 observer pairs × 3 target misbehaviors) separate measures of reliability computed, none fell below 65%, and the median percentage agreement for both types

of indices was above 90% for all pairs of observers.

A simpler method for estimating interobserver agreement was to obtain the total count

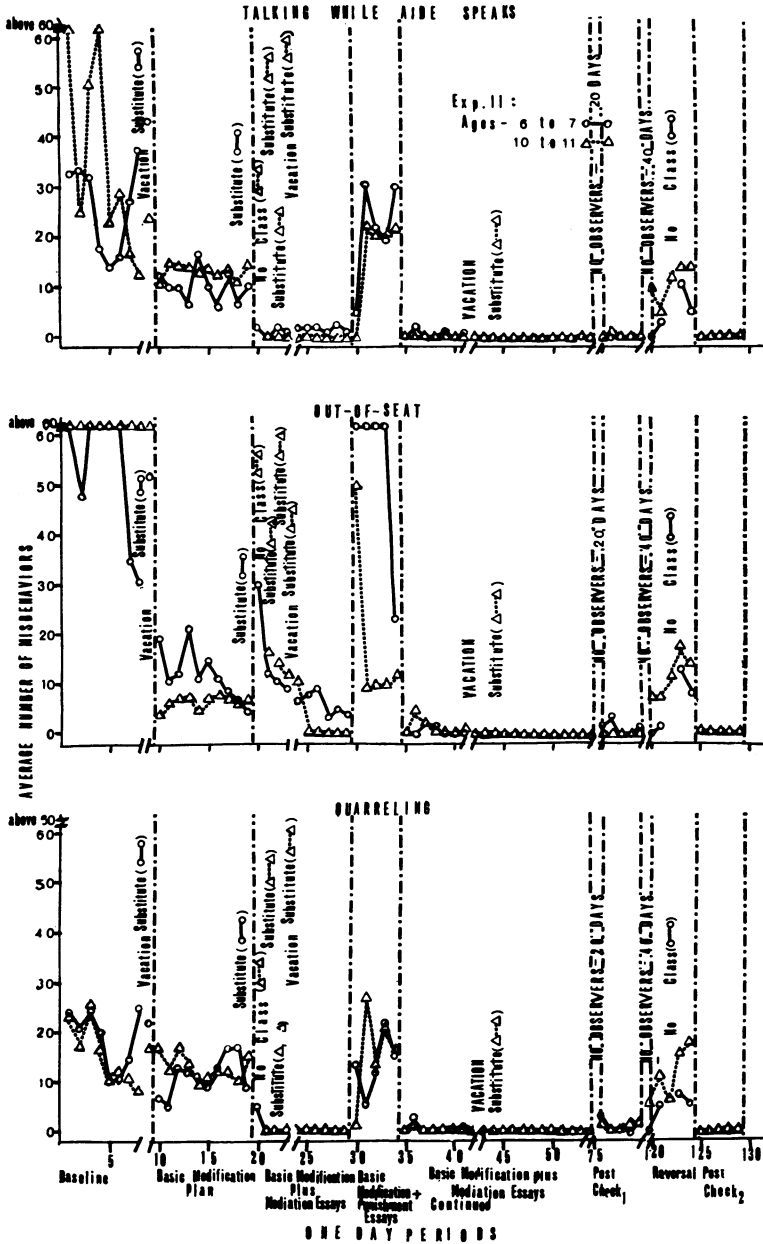


Fig. 2. Average number of lunchtime misbehaviors per day for each of the three target behaviors of Experiment II. Two baseline points above 60 average misbehaviors for the older children for talking while the aide speaks were 63 and 67. For this same group, the baseline data for out-of-seat behavior ranged from 64 to 140, with an average of 92. For the younger group, the baseline data for out-of-seat behavior ranged from 75 to 122, with an average of 85. For this same group and same misbehavior, the BMP + PE data ranged from 62 to 184, with an average of 125.

for each type of misbehavior during each experimental condition for each observer, and then for each pair of observers to divide the smaller count by the larger. When this was done, the mean percentage agreements for the six original pairs varied from 92.3 to 95.8%, and for the six reconstituted pairs, from 86.2 to 96.0%.

*Frequency of target misbehaviors under various experimental conditions.* Figures 1 through 3 show the daily frequencies of target misbehaviors for the six experimental groups during the various treatment periods. In cases where the paired observers were not in complete agreement on daily frequency counts, the mean of the two tallies was used. Although daily frequencies per group actually vary from zero to 184, all frequencies above 60 are plotted at the same height for ease of graphing.

It is clear from these graphs that a significantly smaller number of target misbehaviors was emitted during condition BMP than during any other experimental condition. The graphs also show that the misbehaviors for all groups increased during the reversal condition. Further, all six lunchroom groups appear to have responded similarly to the condition regardless of pupils' age levels, aides' personal attributes, or the order in which the conditions were introduced.

Because of this similarity of response, the data from all groups were combined in Table 1, which shows the overall daily frequency of mis-

behaviors during the main phases of the study. Using the data in the last column of Table 1, one can compute the percentage reductions of Baseline frequency of misbehaviors associated with the various conditions. Under condition BMP + PE, the Baseline frequency is reduced by about 22%; under condition BMP, it is reduced by about 58%; and under condition BMP + ME, it is reduced by over 90%. As condition BMP + ME is extended, the reduction approaches 100%.

*Timeout use and effectiveness.* Timeout was most frequently imposed by the aides during BMP + PE: an average of 53 times in Experiment I and 60 times in Experiment III for the two 10-day periods, and 24 times in Experiment II for the five-day period. When BMP was in effect, timeout use averaged 22 times and 28 times for the 10-day periods of Experiments I and II and seven times for the five-day period of Experiment III. The greatest reduction of its use occurred during BMP + ME: an average of four and of two times for the 10-day periods of Experiments II and III, an average of two times and of once for the 20-day periods of Experiments II and III, and five times for the 25-day period of Experiment I. None of the aides used this procedure during Post Check<sub>1</sub>, Post Check<sub>2</sub>, or Reversal, because they said mediation essays were, for them, easier to administer and a more effective method in reducing the target misbehaviors.

*Changes in aides' perceptions of most disturb-*

Table 1  
Frequency of Target Misbehaviors Per Day for All Six Lunchrooms Combined<sup>a</sup>

<i>Conditions</i>	<i>Talking</i>	<i>Out-of-Seat</i>	<i>Quarreling</i>	<i>All Target Misbehaviors</i>
Baseline	155	303	131	589
Basic Modification Plan (BMP)	78	87	82	247
BMP plus Punishment Essays (PE)	127	225	110	462
BMP plus Mediation Essays (ME) <sup>b</sup>	11	31	9	51
Reversal	62	102	48	212
BMP plus Mediation Essays (ME) <sup>c</sup>	0	0	1	1

<sup>a</sup>221 children

<sup>b</sup>First 10 days of treatment

<sup>c</sup>Five days of Postcheck<sub>2</sub>



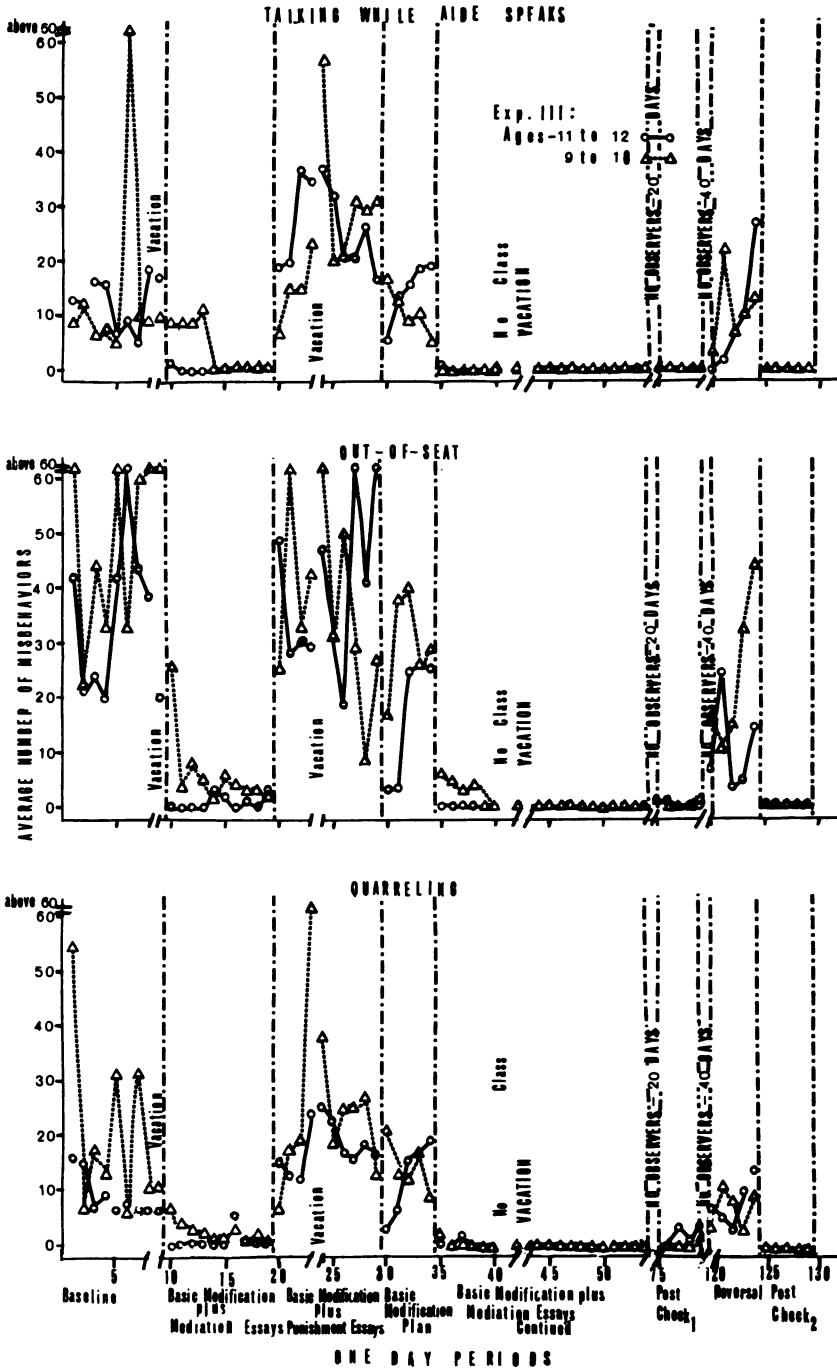


Fig. 3. Average number of lunchtime misbehaviors per day for each of the three target behaviors of Experiment III. The baseline point above 60 average misbehaviors for the younger children for talking while the aide speaks was 64. For this same group, the baseline data for out-of-seat ranged from 72 to 80, with an average of 85. The two BMP + PE points for this same group and same behavior were 68 and 69. The BMP + PE point for this group for quarreling behavior was 84. For the older children for out-of-seat behavior, the baseline point was 105 and the two BMP + PE points were 66 and 95.

*ing pupil behaviors.* At the conclusion of the study, the aides were readministered the questionnaire initially used to identify the target misbehaviors. None of the six aides selected the original target behaviors as being most disturbing, ranking them eighth, ninth, and tenth on the 10-item questionnaire. Instead, they rated giggling, following directions, and shouting as the three behaviors now most in need of modification.

## DISCUSSION

The addition of mediation essays, but not of punishment essays, seemed to add to the effectiveness of the basic modification plan in reducing the frequency of target behaviors. These results provide evidence for the validity of Blackwood's hypotheses (Blackwood, 1972) concerning mediation training. However, there are a number of alternative explanations for the superiority of condition BMP + ME in this study.

It is possible that mediation essays were effective because they functioned as aversive stimuli. Since 96% of the assigned mediation essays involved only the copying of the essay, it would appear that it was no more a punisher than the copying of the punishment essay, which was shown to be ineffective.

Although only a small minority of the pupils were actually assigned to copy mediation essays, target misbehaviors for the entire sample dropped to almost zero. A possible explanation is that since the pupils were not naive in the use of mediation essays, and since the specific mediation essays used in this study were read in the lunchroom and discussed by the aide at the beginning of condition BMP + ME they were effective through the process of pupil rehearsal during the periods of temptation. A more likely explanation would be that the basic modification procedures other than mediation essays reduced the frequency of target behaviors to a very small number of hard-core miscreants who emitted a disproportionate share of disruptive behaviors.

The successful use of mediation essays with this latter group thus nearly eliminated the target behaviors. Since the observers tallied total behaviors but not students, data to substantiate this hypothesis are not available.

While target misbehaviors increased in frequency during Reversal, they did not increase to Baseline levels. Misbehavior frequency during Reversal was about one-third that of Baseline. This suggests that during the conditions, other variables were becoming effective in maintaining appropriate behaviors. It is possible that the children were verbalizing the consequences to themselves at this point. The aides were reluctant to eliminate all operant control during Reversal. Such comments as: "You really can't expect me to give up what works!" and "There'll be the same chaos as before if I do this!" resulted in a decrease from the projected 10-day reversal period to five days to secure the aides' cooperation. One might assume that the aides continued to implement some modification procedures during Reversal.

An important aspect of the present approach is that the aides and children acted as experimenters and observers in jointly developing action research in the school setting (Hall *et al.*, 1971). Success was encountered in employing elementary students as reliable observers. Since most supervising adults find it difficult to spend time observing and recording behaviors, the use of student observers gave the aides more time to study the data collected and develop treatment plans. The regrouping of observers during Reversal and Post Check<sub>2</sub> made no significant difference in recording and reliability.

Of practical consideration to teachers and school administrators is the fact that the study was implemented without raising either material or personnel costs. The resources used were intrinsic to the regular school environment and were purchased with proceeds donated from special student-council projects, classroom cookie sales, and student hobby bazaars.

Research is needed to test the relative effectiveness of mediation techniques as compared

with token economies in modifying classroom behavior. In the event that they prove to be equally effective, mediation training would seem to be advantageous, considering time, effort, and money.

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