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THE EXPERIMENTAL MODIFICATION OF TEACHER ATTENDING BEHAVIOR[1]

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A method of observing and modifying teacher attention to appropriate child responses in preschool classrooms was developed. Two teachers with no formal training in reinforcement principles were observed for a baseline of eight days. Teacher A, who displayed a lower baseline rate of attending to appropriate child responses, was trained first. Teacher B was simply observed during the first part of the training condition for Teacher A. During training, A received feedback which included definitions of appropriate child responses, her frequency of attending to appropriate child responses, her total percentage of attending to appropriate child responses, and her frequency of failing to attend to appropriate child responses. Teacher B was then trained in a similar way. Both teachers showed an increase in attending to appropriate child responses subsequent to the onset of experimental feedback.

Studies in adult social reinforcement of individual child behavior have shown that preschool teacher attention, when used contingently, is often effective in producing change in the preschool child's behavior. (Allen, Hart, Buell, Harris, and Wolf, 1964; Harris, Johnston, Kelly, and Wolf, 1964; Hart, Allen, Buell, Harris, and Wolf, 1964; Hart, Reynolds, Baer, Brawley, and Harris, 1968.) These studies suggest that using attention contingently could be a highly specialized skill. Previously, the teachers involved in these social reinforcement studies have had training in the principles of the reinforcement process as well as experience in the practical application of social reinforcement. In the present study an attempt was made to increase teacher attention to desirable child responses by providing the teacher with factual feedback related to her attending behavior, but not providing specific training in reinforcement principles.

METHOD

Two teachers from different preschools, referred to as Teacher A and Teacher B, were selected for study. Their schools served similar low-income districts of a large midwestern city. Both teachers had college degrees and had taught previously in Head Start programs. The teachers and the children of the current programs were of the same ethnic background. Each class consisted of 15 children, one teacher and one aide. Both classes were operating as part of a Head Start preschool in the local public school system.

For both teachers, the multiple baseline design of the study involved three sequential conditions: a Baseline period, a Training period, and a Probe.

Baseline

During the Baseline condition, the teacher's attention to appropriate child responses was recorded as it occurred normally within the classroom setting. This required the introduc-

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tion of an observer within the classroom. The two observers who had been assigned to this project by the Head Start Evaluation and Research Center were reassigned after Baseline data were collected, making it necessary to engage a third observer to continue the collection of data. However, it was possible for Baseline observers to collect later Probe data, thus making that condition similar to the Baseline condition (in that these observers were not associated with training). In Baseline and Training conditions, reliability data were obtained for all observer pairs. The observer maintained a position on the fringe of the classroom group, so that she could observe the teacher and the children without becoming part of their interactions. The observer made a written record of teacher behavior every 10 sec on recording forms; otherwise, she simply watched the group in silence, except for those occasions when (as part of the experimental procedures of the study) she reported briefly to the teacher. Every 10 sec, the observer recorded whether appropriate child responses (and during Baseline and Probe conditions, disruptive child responses) had occurred near the teacher (within approximately 6 ft) during that time, and if so, whether the teacher attended to them. The observer recorded only child responses occurring near the teacher and not all child responses occurring in the classroom. The first eight days, Baseline behaviors of Teacher A and B were recorded simultaneously by two observers. Subsequently, the third observer recorded the behaviors of the two teachers on alternate days.

The Baseline condition for Teacher A lasted eight days; for Teacher B, 18 days. Each day, data were recorded for approximately 2 hr during the morning. The first eight days of B's Baseline were the same as A's Baseline. During the last 10 days of B's Baseline, the observer spoke briefly to Teacher B every 10 min of each session, asking a short question about the teacher's current objectives with the class or about some particular child. The purpose of this sub-section of B's Baseline was to establish a condition of non-feedback interaction between teacher and observer and in this way provide a comparison for the teacher-observer feedback interaction that would occur during training (typically at 10-min intervals).

Behavior Definitions

"Appropriate child response" was defined as:

A. being involved in a classroom activity,
B. being involved in group play,
C. following teacher's directions, or
D. initiating teacher interactions,

provided that none of these responses was also disruptive (defined next).

"Disruptive child response" was defined as:

A. physically disturbing another,
B. verbally disturbing another,
C. damaging materials, or
D. not following teacher's directions.

"Attending behavior" by a teacher was defined as:

A. talking or singing to a child,
B. smiling at him,
C. looking at his face, or
D. touching him.

Training

Training procedures consisted of providing feedback to the teacher about her current success in attending to appropriate responses of the children in her group. For these purposes four types of feedback were defined:

1. The *behavior definition* was a statement made to the teacher describing what was meant by "appropriate child response". The definition was followed by a set of examples of these categories of appropriate child response such as might actually be seen in the teacher's class. These definitions were initially explained to the teacher following Baseline Conditions and before Training began. Thereafter, different examples from each session were given at the end of that session when the trainer met with the teacher.
2. The *local success frequency* of the teacher was the number of times (*i.e.*, the number of 10-sec intervals) that she had attended to appropriate child response during any 10-min interval of the session. This was reported to her every 10 min, when used.
3. The *daily rate* of the teacher was the percentage of each session (*i.e.*, of its 10-sec intervals) that she spent attending to appropriate child response. This was reported to her at the end of each session.

4. The *failure frequency* of the teacher was the number of times she failed to attend to children engaged in appropriate responses during that 2-hr session. This was reported to her at the end of the session.

Training for Teacher A began after eight days of Baseline observations. For the first seven days of the Training condition (alternate calendar days), feedback consisted of statements of the behavior definition at the outset and close of each session, verbal reports of local success frequency even 10 min, and a report of her daily rate at the end of each session. On the eighth day of the Training condition, a report of the failure frequency was added at the end of each session. On the ninth training day, reports of local success frequency (every 10 min) were discontinued, as the first step in a deliberate program of gradually ending the training procedures. A day later, the behavioral definitions were discontinued, and the day after that the daily report of the failure frequency was stopped. On the fourteenth day of training Teacher A requested a report of her failure frequency, and it was given to her, but thereafter no further feedback data were given to her. On the seventeenth day of the Training condition, the last remaining item of feedback, the daily rate, was discontinued, and the Training condition was thus at an end.

Training for Teacher B began after an 18-day Baseline (on the same alternate calendar day basis as A), the last 10 days of which included a non-feedback interaction between Teacher B and an observer every 10 min. Feedback consisted of written reports of local success frequencies every 10 min, a verbal report of her daily rate, and daily presentations of the behavior definition. After eight days, a daily verbal report of the failure frequency was added. After four more days of training with the four types of feedback, local success frequency was discontinued. Then the behavioral definition, and then the failure frequency, and finally the daily rate were discontinued in that order, similar to the sequence used with Teacher A. In total, training lasted 17 days for Teacher B.

Probe

The Probe condition consisted of recording behavior under conditions similar to those of the Baseline period, but after the training was completed.

RESULTS

The observer reliability data are presented in Table 1[3]. The per cent agreement for each pair of observers is listed under each condition of Baseline and Training. Observer 1 did not observe during Training or Probe conditions.

Table 1

Observer Reliability:
percentages of observers' agreements

Condition	*Observer Pairs*	*Per cent Agreement*
Baseline	$O_1 \times O_2$	92
	$O_1 \times O_3$	95
	$O_2 \times O_3$	89
Training	$O_2 \times O_3$	87
		90
		73
		76
		84
		93

Figure 1 shows the rates of attending to appropriate and disruptive child responses during Baseline, Training, and Probe conditions for both Teachers A and B. Teacher A's attending rate during eight days of Baseline (blocks 1 to 4) averaged 9%. Upon receiving local and daily rates at the onset of Training, her rate increased immediately. When her failure frequency was added to feedback (indicated by arrow ↓) her attending rate rose still higher, reaching an average of 30% of her observed teaching time during the total Training condition.

Four days (blocks 16 to 17) of data were recorded by the Baseline observers for a Probe one week following the Training condition.

[3]The formula used for calculating the percentage of observer agreement was [#agreements/(#agreements + #disagreements)] × 100. An agreement was defined as the simultaneous recording of a behavior or of no behavior by both observers either in the same interval or adjacent intervals. Otherwise, a disagreement was scored.

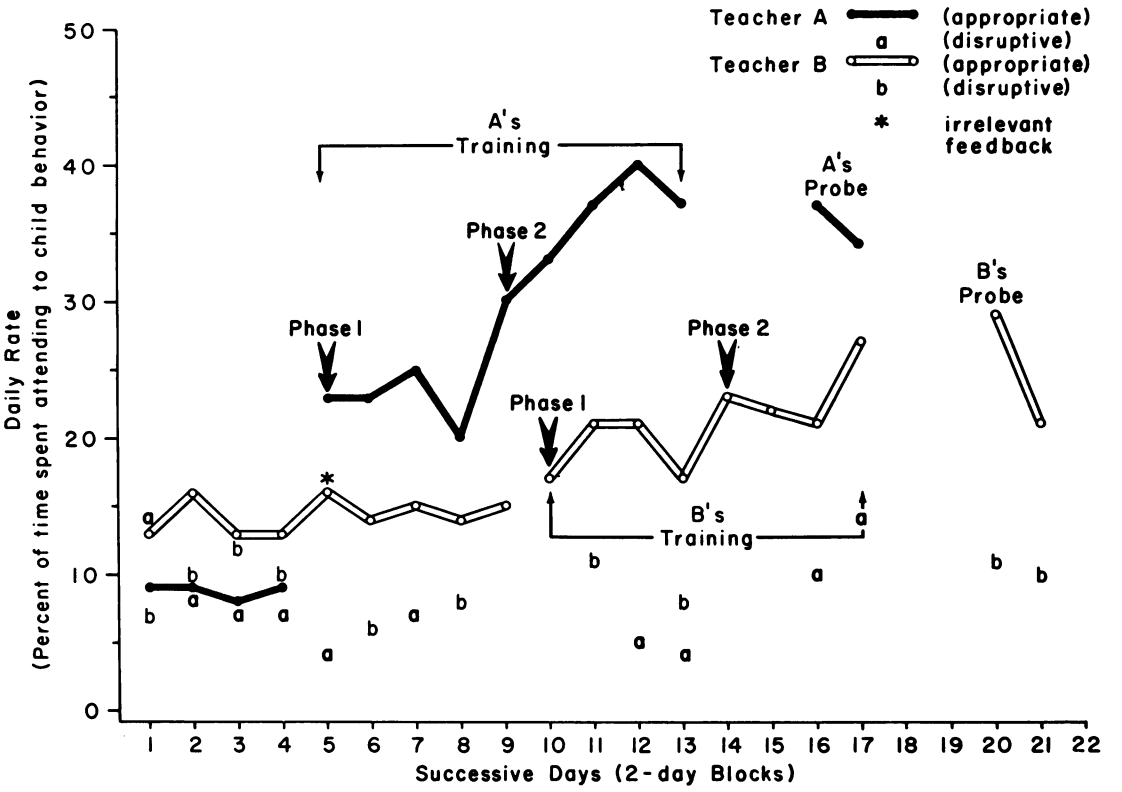

Fig. 1. Daily rates of attending to appropriate and disruptive child behaviors are recorded for Teacher A and Teacher B during Baseline, Training, and Probe Conditions. The data are presented in two-day blocks.

Total attention given to appropriate child responses averaged 35% during the Probe.

Rates of attending to disruptive responses were recorded on a sampling basis: during Baseline, on those Training days when reliability checks were made, and during the Probe conditions. Both Teacher A and Teacher B maintained steady low rates of attending to disruptive child responses, as shown in Fig. 1 by a's and b's.

Teacher B's attending rate averaged 14% per day during Baseline (blocks 1 to 9). Even when social interaction with the observer-trainer occurred every 10 min (indicated by * at block 5) there was no change in her rate. However, once Training was initiated her average rate of attending rose to 19%. When Training included the failure frequency (indicated by ↓ at block 14) Teacher B's rate was 23%, giving an average during the total Training condition of 21%. Her rate during the Probe condition following Training (blocks 20 to 21) averaged 25%.

DISCUSSION

The data indicate that a simple but consistent training procedure can modify teacher behavior, specifically, her selective attending to appropriate child responses. Training specific to the desired behaviors produced an increase in those behaviors by both Teachers A and B. With the exception of two points (blocks 8 and 13), Teacher A steadily increased her rate of attending to appropriate child responses throughout the Training condition.

Teacher B's increases were not as dramatic as Teacher A's; her Baseline rate began at a higher level than Teacher A's rate. Another consideration is that the feedback on local success frequency to her during Training was not as immediate as that to Teacher A. Teacher B was reported to have put the written notes in her pocket or on her desk, even though she had been instructed to look at them immediately. She reported she looked at the accumulated notes for the session at the

end of that session. It is possible that reading the notes collectively at the end of the session had a limiting effect on her rate of increase in attending to appropriate child responses.

Training involved more social interaction with the observer-trainer than had occurred during Baseline. One might suggest that the increased social interaction would lead to increased rates of attending. However, when training began for Teacher A, Teacher B began receiving a similar amount of social interaction from the observer-trainer, the content of which was not specific to her attending techniques. Not until training began, when the content of the interaction did include information specific to her attending behavior, did her rate begin to increase. It appears that social attention with the observer-trainer by itself did not affect attending behavior of the teacher. Furthermore, data from Teachers A and B suggest that feedback consisting of a mixture of local success frequencies, daily rates, and failure frequencies may be more successful than feedback consisting of only local success frequencies and daily rates.

The data also indicate that training increased those specific behaviors being trained and not all attending behavior in general. No discussion of disruptive child responses ever occurred with the teachers, yet rates of attending to disruptive responses remained relatively unchanged throughout the study for both Teacher A and B.

The question may be raised, did the teachers learn to position themselves regularly near children who emitted many appropriate responses, thereby increasing their opportunities to attend rather than attending to children who emitted few appropriate responses? Anecdotally this was reported not to have happened. Subsequent studies may answer this question by extending the observer's code to include identification of the children in the classroom.

In this study, initial instruction and feedback were combined in the training procedure. Unanswered is the effect of the initial instruction defining the behaviors to which teachers were to attend. This instruction by itself may have increased the teacher's attending behaviors. However, in this study it occurred only once as an isolated procedure; thereafter, the redefining was a form of feedback.

Had it been possible to obtain additional Probes at future dates, the question could have been answered whether the effects of training were declining during Probes or whether the effects had stabilized within the range of points during Training. The last points were still well within the training range. However, the question of durability remains unanswered in this report. These data suggest that procedures for assuring durability should be explored.

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