EFFECTS OF AN AUDIO CUEING SYSTEM ON THE RATE OF TEACHER PRAISE¹

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The effects of automated cueing on teacher praise rate was investigated in one special, one fourth-, and one seventh-grade classroom. After establishing baseline praise rates in each of the three classrooms, two methods for increasing teacher praise rate were introduced according to a multiple-baseline design. During the first phase, two teachers were instructed to count and graph their praise rate during each session. All teachers received auditory cues to prompt praising during another phase. In all cases, introduction of cues markedly increased teacher praise rates, but self-recording was relatively ineffective. An analysis of teacher-praise distributions showed that cues closely controlled teacher praise for two of the three teachers.

DESCRIPTORS: cueing, prompting, praise, classroom, response rate, children

The experimental analysis of teacher attention indicates that when teachers systematically attend to desirable behavior and ignore undesirable behavior, their classroom effectiveness increases (Cooper, Thomson, and Baer, 1970; Cossairt, Hall, and Hopkins, 1973; Hall, Lund, and Jackson, 1968; Schutte and Hopkins, 1970). This focus on social consequences has underscored the need to train teachers to employ contingent praise, and various methods have been used to accomplish this. Unfortunately, most of these are unsuitable for large-scale application and have yielded inconclusive results. The most commonly employed method involves the use of feedback; *i.e.*, telling teachers their rate of praise. Cooper *et al.* (1970) found this to be effective, but other researchers have not (Cossairt *et al.*, 1973; Rule, 1972). The major dif-

ficulty encountered in extending this method to a large-scale training program is the need to have a supervisor present in the classroom for an extended time.

Another type of feedback involves having teachers record their own daily praise rates from classroom videotapes. Saudargas (1972) and Thomas (1971) successfully modified teacher praise rates using this technique. However, Bailey and Wehr (1972) and Rule (1972) did not obtain substantial changes with this method. Furthermore, the cost of videotape equipment and the time a teacher must spend viewing the tapes, limit the application of this technique.

Perhaps one of the more effective methods used to date, is to make principal or experimenter praise contingent upon teacher praise. Cossairt *et al.* (1973) demonstrated that this markedly increased rate of teacher praise. Further, this method was also effective with teachers who failed to respond to simple feedback. The need for daily supervision by the experimenter or principal is the primary limitation of this method.

Still another approach to training teachers is to prompt them frequently to praise. Hall *et al.* (1968) accomplished this by having an observer hold up a colored square each time they wanted

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the teacher to praise. Similarly, researchers have used prompting to teach parents to apply their social consequences better (Hawkins, Peterson, Schweid, and Bijou, 1966; Moore and Bailey, 1973). In each of these studies, experimenters signalled the teacher or parent when the target subject was engaging in desirable behavior.

In the average classroom situation, several children are almost always engaging in desirable behavior at any point in time. Randomly presented signals or cues could serve as reminders to a teacher to deliver praise to some of these children. The present study analyzed the effectiveness of audio cues presented over the school's public-address system in establishing criterion rates of teacher praise. One potential advantage of this technique is that the need for an observer to record or prompt teacher behavior may be obviated. A second purpose was to compare the relative efficacy of prompting and self-recording as methods of increasing teacher praise.

METHOD

Subjects and Setting

Three teachers in one special, one fourth-, and one seventh-grade classroom, located in a low socio-economic multiracial area of Halifax, Nova Scotia taught classes of 16, 23, and 15 students respectively.

Audio cues were tones played on a Sanyo Model STD-100 cassette recorder and delivered to the classrooms via an Electro Vox school public-address system. It was possible to deliver cues to any of the individual classrooms by depressing that classroom's switch to the "program" position. As many classrooms as the experimenter desired could receive the cues either alone or simultaneously. This use of the equipment did not interfere with normal functioning of the system as an intercom.

Daily Recording of Praise Rate

Teacher praise was defined as commendatory statements made by the teacher to a specified

child contingent upon correct student academic behavior. The first author and a research assistant served as classroom observers and only their data were used for experimental purposes. They recorded teacher praise for 20 min each day during a reading period for Teachers A and B and during math for Teacher C. Teacher A's reading period and Teacher C's math period occurred during the same time each day; Teacher B's reading period occurred at different times. The teachers were never observed during the first or last 5 min of the period because the children usually were not engaged in school work at these times. Instances of praise were marked on recording sheets that had a space provided for every second of each minute. Praise was recorded by checking the box indicating the second in which it occurred.

Calculation of Reliability

An agreement between the two observers on when praise occurred was scored if the times marked by the two observers did not differ by more than 2 sec. Any difference greater than 2 sec was scored as a disagreement. Reliability was calculated as a percentage by dividing the number of agreements on the occurrence of praise by the number of agreements plus the number of disagreements and multiplying by 100. At least two reliability checks were made during each experimental phase. Mean reliabilities for Teachers A, B, and C were 99.1%, 98.5%, and 99% respectively, with respective ranges of 97 to 100%, 97 to 100%, and 98 to 100%.

Experimental Conditions

The following conditions were introduced across teachers according to a multiple-baseline design. The sequence and duration of each condition are presented in Figure 1.

Teacher behavior was not manipulated during baseline. However, the teachers were aware that the experimenters were present to help them increase their praise rates.

Count, Graph, and Criterion Rates of Praise

Each teacher was given a golfer's wrist counter and a sheet of graph paper at the start of this phase. Also, they were instructed to count each time they praised a child for his work, to calculate their praise rate in responses per minute, and to chart it on a sheet of graph paper at the end of the session. They were further instructed to try to maintain a praise rate of two responses per minute. Teachers recorded their praise rate only during the experimental sessions, and teacher counts were not employed for experimental purposes. Throughout this phase, the experimenter checked each teacher's graph daily without delivering any evaluative comments.

Cueing Phase (two cues per minute)

On the day before the cueing procedure began, the teachers were given the following instructions: "Starting tomorrow, I am going to introduce a brief signal, a beep, over the P.A. system. Each time you hear this signal, I would like you to praise someone in the classroom who is doing their work. There should always be someone in the classroom worthy of praise so be sure you praise someone each time you hear a beep. The purpose of these signals is to improve the rate, distribution and pacing of your praise. I would also like you to give the class the following instructions before tomorrow's class. Any questions?" A sheet with the following instructions was then given to the teacher: "Starting today, you will hear some beeps coming over the P.A. system. These beeps are to remind me to take note of what's going on in the classroom, so please try to ignore them and continue doing your work." The loudness of the signals was adjusted so that they were clearly audible to the teacher over the classroom noise level. Cues were presented only during periods when observers were present.

Cues were presented at a mean rate of two per minute according to a variable-time constant-probability schedule (Catania and Reynolds, 1968; Zeiler, 1968).

Baseline 2

Auditory cues were not presented during this phase, although teachers were instructed to continue praising at the same rate as during the previous phase. The purpose of this phase was to assess whether or not the teachers would continue to praise at the same rate as during the previous phase.

Cueing Phase (three cues per minute)

This phase was identical in all respects to the previous phase, except that the cues were presented at a mean rate of three per minute.

Baseline 3

This phase was identical to the second baseline phase.

RESULTS

Praise Rate

Daily praise rates are presented for all three teachers in Figure 1. Although mean baseline praise rates for each of the three teachers were 0.5, 0.4, and 1.1 praises per minute for Teachers A, B, and C respectively, a slightly decreasing trend can be seen for Teachers A and B. Praise rates for these teachers were 0.2 and 0 respectively during the last day of the baseline condition. The observers' presence may have elevated praise rates during the first couple of days, since the teachers were aware that the experimenters were present to help them increase their praise rate. Introduction of the self-recording phase resulted in an initial increase followed by a return to baseline rates for Teacher B and little change in praise rate for Teacher C. Mean teacher praise rate was 0.8 praises per minute and 1.3 praises per minute for Teachers B and C during this phase. In contrast, introduction of the cueing phase (two cues per minute) markedly increased the praise rate of all three teachers. The mean praise rates during this condition were 2.5, 1.5, and 2.4 praises per minute for Teachers A, B, and C. Removal of beeps had

Fig. 1. Mean praise rate for each daily session across all conditions.

little effect upon the rates of praise obtained. Mean praise rates during the second baseline phase were 2.3, 1.7, and 2.6 praises per minute. Introduction of the second cueing phase (three cues per minute) further increased rate for Teachers A and B. Teacher A's rate increased to 3.1 praises per minute and Teacher B's rate increased to 2.7 praises per minute. Removal of the second cueing phase did not significantly alter the rate of teacher praise: 3.6 praises per minute for Teacher A and 2.7 praises per minute for Teacher B. Analysis of praise distributions indicated that Teachers A, B, and C had no difficulty complying with the signals for praise, although the behavior of Teachers A and B seemed to be more directly controlled than that of Teacher C.

Although the cueing system substantially changed the rate of teacher praise, the observers rarely observed teachers praising "undeserving" behavior. On those few occasions when off-task behavior was praised, it seemed clear that the teacher's spatial location did not afford her as good a view as the observers.

DISCUSSION

This experiment demonstrated the efficacy of auditory prompting as a method of increasing teacher praise. The method was effective with all three teachers. The data also demonstrated that prompting can work in situations where counting, charting, and self-recording are less effective. One reason why cueing was more effective than self-recording may be that it provided a frequent discriminative stimulus to look and attend to student behavior. In the absence of cues, teachers may become so busy with other activities that they forget to praise. Although the praise rate obtained may seem particularly high, rates as high as these are sometimes required (Madsen *et al.*, 1968).

The fact that the rates and distribution of praise were basically unchanged after the cues were removed further demonstrates the utility of this method. It is possible that improvement in student performance resulting from higher praise rates was sufficient to maintain teacher performance. The fact that each teacher felt that student

behavior improved with increased praise is consistent with this explanation.

One important question raised by these results is whether or not the cueing system would be equally effective if observers were not present during training. To answer this question, new methods of recording data must be developed that do not require the presence of observers. If cueing is found to be effective in the absence of observers, it should prove to be a practical way to regulate teacher praise for the following reasons: first, most public schools already have a sophisticated public-address system that provides a vehicle for efficiently delivering cues to many classrooms; and second, it does not require a supervisor's presence in the classroom. Therefore, this method would save both time and expense.

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