TEACHERS' PRAISE AND DISAPPROVAL RESPONSES AS A FUNCTION OF AUDIO-CUEING

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by

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ABSTRACT

This investigation examined three aspects of the verbal behavior of teachers in a classroom setting: (a) the relationship between teachers' natural rates of praise and disapproval, (b) the efficacy of audio-cueing as a method of training teachers to increase their praise rates, and (c) the effect of experimentally manipulated rates of praise on teachers' natural rates of disapproval.

Twenty-two elementary school teachers were randomly assigned to one of two experimental groups. Both groups participated simultaneously during both an initial baseline period and a treatment period in which teachers were asked to praise someone upon hearing a randomly-scheduled auditory cue. Between the initial baseline and the treatment period, one group participated in a second baseline period during which the treatment apparatus, a randomly-scheduled tone, was presented without any explanation to the teachers. For convenience this group was called "double-baseline" to distinguish it from the "single-baseline" group which participated during only the initial baseline period. The second baseline period was included to measure the effect of the treatment apparatus used in isolation. Throughout the study, measures of the teachers' praise and disapproval responses were recorded by observers. The

teachers did not know that their disapproval responses were being recorded, and only during the treatment did they know their praise responses were being recorded.

The results of the investigation were as follows: First, both groups emitted equivalent numbers of praise and disapproval responses during both the initial baseline and treatment periods. This result supports the efficacy of the randomization procedure. Second, during the initial baseline, teachers emitted significantly higher numbers of disapproval responses than praise responses. This result was in accord with the results of previous research on this topic. Third, for double-baseline teachers, there was no significant difference in the number of praise responses emitted during the first and second baseline periods. This result suggests that the unexplained occurrences of the tone did not alter the teachers' praise rates. Fourth, during the second baseline, double-baseline teachers emitted significantly fewer disapproval responses than they did during the initial baseline. This unexpected result suggests that either the unexplained occurrences of the tone had a significant effect upon teachers' expressions of disapproval, or other significant but unidentified sources of variance are operating during the second baseline period. Fifth, during treatment, the number of teachers' praise responses was significantly higher than that for either the initial or second baseline

periods. This result supports previous research on the efficacy of audio-cueing as a technique for training teachers to increase their praise rates. Sixth, during treatment, teachers emitted significantly lower numbers of disapproval responses than during both the initial and second baseline periods. This result indicates that as teachers' praise rates increase in response to auditory cues, their natural rates of disapproval decrease.

In general, the results suggest that an inverse relationship exists between manipulated rates of teacher praise and subsequent rates of disapproval; however, this suggestion is qualified by an unexplained source of variance which precipitated a significant decline in teachers' disapproval from the initial to the second baseline. Additional research is necessary to identify the nature of the relationship between praise and disapproval. If, as the present investigation suggests, the relationship is an inverse one, it implies that an uncontrolled confounding variable may have been operating in previous studies and programs concerned with the manipulation of teacher praise and its effect upon student behavior.

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CHAPTER 1

INTRODUCTION

It has been well documented that teachers' rates of praise and disapproval affect the behavior and academic performance of school children. The effect of teacher praise has been studied frequently and has been found repeatedly to facilitate good behavior and good performance in children. (All empirical and theoretical statements are referenced below.) In contrast, disapproval does not appear to have been studied as extensively as praise. Furthermore, the studies that have investigated the effects of teacher disapproval on children have frequently reported conflicting findings. Disapproval has been found in some instances to inhibit problem behaviors in children; in others, to increase problem behaviors.

Understanding what researchers are communicating when referring to praise or disapproval necessitates a definition of these terms. Generally, researchers have defined praise as any positive comment indicating approval, commendation and/or recognition of achievement made by a teacher to an individual child, a group of children, or to the class as a whole. Praise has been used interchangeably with the term approval. The definition of disapproval has usually been stated as any negative comment indicating blame,

criticism, scolding, threats, dissatisfaction with performance, or ridicule made by a teacher to an individual child, a group of children, or to the class as a whole. Disapproval has been used interchangeably with blame and criticism. In a few instances, the definitions of both praise and disapproval have included some non-verbal behaviors such as smiling and patting or frowning and hitting, respectively. However, because of the difficulty inherent in recording non-verbal behavior, particularly facial gestures, most researchers have limited their definitions of praise and disapproval to verbal behaviors.

In attempting to find effective ways of dealing with problem behaviors in school children, researchers have employed various methods to train teachers to change their natural rates of praise. Generally, it has been noted that when praise rates are increased, appropriate student behaviors, such as attending to teachers and completing assigned tasks, are also increased. Alternatively, a decrease in praise rates has been found to result in an increase in inappropriate student behaviors, e.g., not attending to the teacher, not completing assigned tasks.

Much less frequently, disapproval rates have been manipulated through teacher training. When these manipulations have been reported, the effects of changes in disapproval rates on children's behavior have varied considerably. In some studies, increased rates of disapproval

have been shown to result in an increase in inappropriate student behaviors; while in others, increased disapproval produced a decrease in inappropriate behaviors.

While there appears to be general agreement on the effects of children's behavior of altering teachers' praise rates, there is little agreement on the effects of altering teacher disapproval rates.

Manipulated rates of teacher praise and disapproval have been demonstrated to be important variables in changing pupils' behavior. The most frequently encountered manipulation seems to be the training of teachers to increase their praise rates. Effects of this training on student behaviors have been documented frequently in a large number of investigations. An observation of interest is that, in general, these investigations have not included any consideration of the disapproval variable. Given that teacher disapproval rates have been shown to effect behavior changes, it appears that unrecorded teacher disapproval rates may have confounded, to some degree, the results of studies concerned only with the effects on children's behavior of increased rates of teacher praise. In order to be able to attribute changes in children's behavior exclusively to increased praise, it seems necessary to determine what happens to teachers' natural rates of disapproval when teachers are trained to increase their praise rates. Additional research is required to help determine the

relationship between rates of praise and disapproval following increases in teacher praise rates. If continuing research tends to support the position that disapproval rates are unaffected by increases in teacher praise rates, then disapproval could be dismissed as a confounding variable in existing studies of increased teacher praise. However, if it could be substantiated that increases in teacher praise rates are accompanied by corresponding increases or decreases in disapproval rates, then disapproval would have to be recognized as a possible confounding variable in all studies of elevated praise rates, as well as in all behavior modification programs involving increased rates of praise.

The purposes of this investigation are: (a) to study teachers' natural rates of praise and disapproval, (b) to train teachers to increase their rates of praise, and (c) to determine what happens to teachers' natural rates of disapproval when they receive training to increase their praise rates. The paucity of information about the relationship between praise and disapproval suggests that such an investigation will assist the task of better understanding the effects of teacher praise and disapproval on student behavior.

CHAPTER 2

RELATED LITERATURE AND HYPOTHESES

An extensive summary of fifty years of research on the effects of teacher praise and blame on the performance of school children concluded that praise has been found generally to have a facilitating effect on children's performance, whereas blame has been found generally to have a detrimental effect on children's performance (Kennedy & Willcutt, 1964).

Support for the efficacy of praise has since been reported by several investigators: Becker, Madsen, Arnold, and Thomas (1967); Broden, Bruce, Mitchell, Carter and Hall (1970); Madsen, Becker and Thomas (1968); McAllister, Stachowiak, Baer and Conderman (1969); O'Leary and Becker (1968); Schutte and Hopkins (1970); Spencer (1977); Thomas, Becker and Armstrong (1968); Ward and Baker (1968).

Results consistent with the findings of Kennedy and Willcutt (1964) on teacher disapproval have been subsequently reported in several investigations: Hall, Panyan, Rabon and Broden (1968); Madsen, Becker, Thomas, Koser and Plager (1968); Thomas et al. (1968); O'Leary and Becker (1968). These investigators suggest that increasing the rate of teacher disapproval behavior may increase problem

behaviors in children.

Results discrepant with most studies of the effects of teacher disapproval have been reported by Jones and Millar (1974). They have noted that verbal disapproval is effective in reducing the disruptive behavior of a group only if it is combined with specific non-verbal disapproval behaviors.

In addition, several investigators have attended to praise in conjunction with criticizing or ignoring inappropriate behavior. Madsen, Becker and Thomas (1968) found that ignoring inappropriate behavior and simultaneously approving appropriate behavior improved classroom behavior. McAllister et al. (1969) demonstrated that the combination of disapproval for disruptive behaviors and praise for appropriate behaviors substantially reduced the incidence of disruptive behaviors.

Despite the repeated reports of the consistency of praise as a modifier of students' behaviors, and the inconclusive reports of the efficacy of disapproval, at least two studies concluded that the majority of teachers they studied had individual rates of disapproval that were higher than their individual rates of praise (Thomas, Presland, Grant, Dily & Glynn, 1978; White, 1975).

Noting the well documented beneficial effect of teacher praise on student behavior, and the naturally low praise rates of many teachers, researchers have frequently

engaged in training teachers to modify their praise rates (Clark, Macrae, Ida & Smith, 1975; Cossairt, Hall & Hopkins, 1973; Hall, Lund & Jackson, 1968; Madsen, Becker & Thomas, 1968; Parsonson, Baer & Baer, 1974; Rule, 1972; Saudargas, 1972; Spencer, 1977; Thomas et al. 1968; Van Houten & Sullivan, 1975). At least five training techniques have been utilized by these investigators. These techniques have been reviewed extensively by Spencer (1977) and each is summarized below.

The specific instruction technique, that is, using only written or verbal instructions to alter the praise rates of teachers, seems to have been successful in increasing teachers' praise rates in some studies (Madsen, Becker & Thomas, 1968) but not in others (Cossairt et al., 1973; Rule, 1972). Consequently, specific instruction, in isolation, appears to be an unreliable method of increasing teachers' praise rates.

A second training technique, behavioral feedback to teachers, also appears to have been effective in raising teachers' praise rates for some researchers (Parsonson et al., 1974; Saudargas, 1972; Thomas, 1971) but not for others (Cossairt et al., 1973; Rule, 1972). In addition to the questionable efficacy of the feedback technique in raising teachers' praise rates, this technique requires frequent teacher interruption which may be disruptive for many teachers.

A third training procedure for elevating teachers' praise rates is described by Rule (1972) as direct intervention and modelling. When direct intervention is employed, a trained observer praises appropriate teacher behavior, and, when a teacher exhibits inappropriate behavior, the observer takes charge of the class and models appropriate behavior. This direct intervention procedure appears effective in changing teacher behavior; however, it also may be aversive to many teachers although there appears to be no evidence to support this.

A fourth technique which has been used successfully to raise teachers' praise rates is actually a combination including several procedures described previously. Clark et al. (1975) devised a combination of each of four training techniques; namely, written instructions, modelling, verbal feedback, and graphic feedback. Although the Clark et al. (1975) technique appeared to be successful in increasing teachers' praise rates, the modelling and feedback aspects of the procedure could be unacceptable to some teachers.

A fifth technique for altering teacher behavior involves cueing teachers to respond in a manner previously arranged. Hall et al. (1968) successfully employed a visual cue to prompt teachers to praise appropriate behavior. With a visual cue, however, there is the disadvantage of the teachers having to maintain constant visual contact with the person dispensing the visual cue.

A variation of the Hall et al. (1968) procedure was utilized by Van Houten and Sullivan (1975) and Spencer (1977). This variation employed an auditory cue as a technique to prompt teachers to elevate their praise rates.

Because audio-cueing following previous instructions to teachers was effective in increasing the praise rates of all the teachers in both the Van Houten (1975) and Spencer (1977) studies, and because this training method is economical, easily implemented and minimally disruptive of normal classroom routine, the audio-cueing procedure appears to be an exceptionally effective method of training that warrants a more detailed description.

In both the Van Houten and Sullivan (1975) and the Spencer (1977) studies, teachers were asked to praise some previously defined appropriate behaviors when they heard a randomly scheduled tone delivered from a cassette recorder. During the training phase of both studies, teachers' praise rates stabilized at rates many times higher than their baseline praise rates. One difference between the two studies is that the teachers in the Van Houten and Sullivan (1975) study were aware that the observers present were there to assist in elevating teachers' praise rates, whereas the teacher in the Spencer (1977) study was informed that the observer was recording changes in children's behaviors only.

Researchers have often manipulated teacher praise rates and, in some instances, manipulated teacher disapproval rates (Madsen, Becker & Thomas, 1968; Thomas et al., 1968). Few researchers, though, have recorded what happens to natural rates of teacher disapproval when teachers' rates of praise are increased through training. Cossairt et al., 1973) reported that, when the praise rates of three teachers were increased, there appeared to be no significant changes in their disapproval rates; however, these teachers had very low baseline rates of disapproval in comparison with baseline rates of disapproval recorded in some other studies (Thomas et al., 1975; White, 1975). These very low rates of disapproval emitted by the Cossairt et al. (1973) teachers may have created a "floor effect" that would have precluded the recording of further significant declines in the rates of disapproval.

Considered in total, the literature on this topic suggests that praise and disapproval are both effective modifiers of behavior; however, the literature also suggests that the consequences of the interaction of these two variables is a subject that requires additional research. Further clarification of a possible relationship between praise and disapproval may have important implications for both theorists and practitioners. If future investigators were to demonstrate either a direct or inverse relationship between increased praise rates and subsequent natural dis-

approval rates, then disapproval may become recognized as a possible confounding variable in research and/or behavior programs that do not control for disapproval rates when dealing specifically with praise responses. For example, most of the previously cited investigations that have attributed significant changes in children's behaviors solely to increased teacher praise rates appear not to have considered the possibility that disapproval rates may also have changed as praise rates were changed (Becker et al., 1967; Brodin et al., 1970; Hall, Lund & Jackson, 1968; McAllister et al., 1969; Spencer, 1977; Ward & Baker, 1968, etc.). If such simultaneous changes occurred, then the resultant behavior changes may have been attributable to more than just praise. Either eliminating the possibility of a relationship between praise and disapproval or establishing a definite link between teacher praise and disapproval would help the task of understanding the effects of both approval and disapproval on behavior.

Because little attention has been focused on exploring a possible connection between rates of praise and disapproval there is little evidence available to suggest the probable nature of the relationship. At least three relationships may be postulated: (a) no change in disapproval rates as praise rates are increased (Cossairt et al., 1973); (b) an increase in disapproval rates as praise rates are increased--perhaps because of the possibility of teachers' becoming

more attentive to all behaviors, including inappropriate ones while they are being trained to detect and praise appropriate behaviors; and (c) a decrease in disapproval as praise rates are increased. Although the literature concerning a possible relationship between praise and disapproval is sparse, what evidence does exist tends to support the third alternative, that is, that disapproval rates decrease as praise rates increase. While this alternative is not in accord with the Cossairt, et al. (1973) finding of no change in disapproval rates as praise rates increased, a careful analysis of the Madsen, Becker and Thomas (1968) study suggests the relationship between prompted praise and spontaneous reductions in disapproval may be reciprocal. These investigators attempted to reduce problem behaviors in children by several means including: manipulating teachers' praise rates, implementing specific classroom rules, and instructing teachers to ignore inappropriate behaviors. Their results indicate a continuous decline in the rate of disapproval over the duration of the investigation.

Given the inclusion in the investigation of instructions to teachers to ignore inappropriate behavior rather than express disapproval, the steadily declining disapproval rates reported by Madsen, Becker and Thomas (1968) cannot be interpreted as a spontaneous reduction in expressed disapproval. However, Madsen, Becker and Thomas

(1968) also included in their experiment a second baseline period during which no instructions were given to teachers and in which a decline in disapproval rates was also recorded. This result tends to support the position that a possible spontaneous decrease in disapproval occurs as praise rates are increased. This support is qualified by the fact that it is impossible to separate the influence of the instructions the teachers received previously concerning ignoring inappropriate behaviors from wholly spontaneous reductions in disapproval during the second baseline period described by Madsen, Becker and Thomas (1968).

Additional support, albeit tentative and indirect, for the position that disapproval rates may decrease as praise rates increase may be gleaned from the general literature on praise and disapproval. Literature previously cited repeatedly reports that increased praise rates appear to increase appropriate behaviors and decrease inappropriate behaviors. Thus teachers may, as they are increasing their praise rates, be decreasing simultaneously the numbers of inappropriate behaviors to which they would ordinarily respond with disapproval, thereby reducing their disapproval rates as well. Although varying effects of disapproval on behavior have been noted, the most frequent finding of the studies reviewed for the present investigation has been that decreases in disapproval rates

tend to accompany increases in inappropriate behavior (Hall, Panyan, Rabon & Broden, 1968; Madsen, Becker, Thomas, Koser & Plager, 1968; Thomas et al., 1968; O'Leary & Becker, 1968). If the converse of this finding can be accepted as reasonable, i.e., that decreases in disapproval rates tend to accompany decreases in inappropriate behaviors, then if decreasing disapproval rates were actually a confounding variable in studies of elevated praise rates, the decreasing disapproval rates may be strengthening the effects of increasing praise rates by also reducing inappropriate behaviors. If decreasing rates of disapproval are contributing to behavior changes which are identical to those associated with elevated praise rates, then it can be readily understood why so many studies not controlling for changing disapproval rates, have reported significant decreases in inappropriate behaviors following the elevation of praise rates.

The rationale offered above to support the position that increased praise rates accompany decreased disapproval rates can also be used to refute the alternative that disapproval rates are directly related to praise rates. Increased disapproval rates often accompany increases in inappropriate behaviors (Hall, Panyan, Rabon & Broden, 1968; Madsen, Becker, Thomas, Koser & Plager, 1968; Thomas et al., 1968; O'Leary & Becker, 1968). Consequently, the increases in inappropriate behaviors associated with

increased disapproval rates should counterbalance the decreases in inappropriate behaviors associated with increased praise rates; thereby producing no significant change in behavior. In contrast, the studies of the effects of praise generally report significant decreases in inappropriate behaviors (e.g., Becker et al., 1967; Broden et al., 1970; Hall, Lund & Jackson, 1968; McAllister et al., 1969; Spencer, 1977; Ward & Baker, 1968). Thus, the contention that disapproval rates increase as praise rates increase appears to have no support in the relevant literature.

In general, the literature reviewed appears to support the postulation of three hypotheses.

First, the results of Thomas et al. (1978) and White (1975) suggest that teachers' natural rates of disapproval will be higher than their natural rates of praise.

Second, the work of Van Houten and Sullivan (1975) and Spencer (1977) on audio-cueing suggests that teachers' praise rates will increase significantly as a result of instruction to emit praise responses following each auditory cue.

Third, the Madsen, Becker and Thomas (1968) results in particular and the praise and disapproval literature in general suggest that teacher disapproval rates will decrease concomitantly as teacher praise rates are increased through training.

CHAPTER 3

METHOD

Subjects

From four elementary schools under the jurisdiction of the Avalon Consolidated School Board in St. John's, Newfoundland, 24 elementary school teachers (18 females and 6 males) volunteered to participate in the present investigation. The teachers varied in age, level of experience, and grade level (Grades K to Six). See Appendix A for a summary of information about the participating teachers.

The recruiting of participating teachers for the experiment was accomplished by visiting various schools and describing the investigation as one concerned with the recording of various classroom behaviors. No mention of the dependent variables, praise and disapproval, was made to the teachers. The teachers were told that some undisclosed verbal responses would be required of them, and that they would be receiving some type of cue from one observer who would be present for every session of the experiment. In order to preserve the spontaneity of the participants' praise and disapproval responses it was not made clear to the teachers whether they and/or their pupils would be studied.

Of the 24 teachers recruited, 12 were randomly assigned to one group which was exposed to two baseline conditions (double-baseline group). The remaining 12 were randomly assigned to a second group which was exposed to only one baseline condition (single-baseline group). One teacher from the single-baseline group was excluded from the experiment after the first baseline phase because her natural rate of praise was not at all consistent with that of the remaining 23 teachers. To equate the two groups, one teacher was randomly eliminated from the double-baseline group.

Setting

This study was conducted in the natural classroom setting of each of the teachers involved.

Apparatus

A Sony Cassette Recorder dispensed the auditory cues required for the experiment. The cue itself consisted of a piano note, G above middle C, struck once. This cue or tone was presented according to a variable-time, constant-probability schedule at a mean rate of one tone every two minutes for each of the 20-minute observation sessions during the unexplained-tone phase and the treatment phase (Catania & Reynolds, 1968; Zeiler, 1968).

Observation and Recording Procedure

The observers. The data were recorded by two observers trained specifically for this experiment. The training proceeded as follows. Initially, both observers jointly recorded on protocols the praise and disapproval behaviors of two different teachers over four 20-minute observation sessions. Next, both observers attended eight additional 20-minute sessions and recorded independently the praise and disapproval rates of the two previously observed teachers, neither of whom was involved in the experiment proper.

An interobserver reliability check computed at this time revealed that both observers were yielding consistently similar data and the training period terminated (Reliability for praise, 90.5%; reliability for disapproval, 94.6%).

Following the training period, all experimental sessions were attended by one observer except during four pre-scheduled, reliability-check sessions made throughout all phases of the study when each observer independently rated the same 20-minute session. The results of these checks are presented in Chapter 4.

Method of recording. In accord with the Van Houten and Sullivan (1975) procedure, observation sessions were each of 20 minutes duration. Each session was divided into ten intervals to facilitate data recording.

In order to minimize the possibility of teachers memorizing the cueing schedule, three cueing tapes were prepared each with schedules that differed randomly from each other while maintaining a mean presentation rate of one cue every two minutes. The three tapes were randomly rotated at each session with each teacher.

Definition of Terms

Teacher praise was defined as any positive verbal comment (not contingent on any specific behavior) expressing approval, commendation, achievement or endorsement that was made by the teacher to an individual child, a group of children in the class or the class as a whole. Praise words, phrases or sentences included "That's good," (approval), "I like you, you make me happy" (approval), "You are doing it well" (commendation), and "That's the way to do it" (endorsement).

Teacher disapproval was defined as any negative verbal comment (not contingent on any specific behavior) expressing blame, criticism, scolding, threat, dissatisfaction, ridicule, censure, disdainful correction, and privilege deprivation that was made by the teacher to an individual child, a group of children in the class, or the class as a whole. Disapproving words, phrases or sentences included "That's wrong, don't do that," "Stop talking," "You are wasting time," "If you don't stop, you'll be punished."

For each teacher praise response, a plus (+) mark was placed within the interval in which the praise response occurred. Separate words, phrases or statements of praise were recorded as individual praise responses; e.g., if a teacher said "You are doing great, and you're a good boy" in sequence to one child, then two praise responses were recorded.

For each teacher disapproval response a minus (-) mark was placed within the interval in which the disapproval response occurred. Separate words, phrases or statements of disapproval were recorded as individual disapproval responses; e.g., if a teacher said "You are bad today and you are getting on my nerves" in sequence to one child, then two disapproval responses were recorded.

The frequencies for each of the praise and disapproval behaviors were then totalled for each 20-minute observation session (see Appendix B for a sample record form).

Experimental Procedure

The basic paradigm for this study was a quasi-experimental design, in which repeated measures were taken throughout the baseline and treatment periods. An important characteristic of this design is that all subjects move through each experimental period simultane-

ously. This procedure differs from the frequently employed multiple-baseline technique in which subjects may move through each experimental period at different times. The multiple-baseline technique was considered for the present study; however, if this technique were utilized in the present investigation the dependent variables, rates of praise and disapproval, could be contaminated by the frequent, naturally occurring interactions among the participating teachers. In order to minimize such contamination it was imperative that all subjects be involved in each experimental phase simultaneously. This constraint necessitated the use of the present design, even though it is acknowledged that the use of this design can involve some loss of experimental control due to time-related sources of variance. In the present investigation, these were considered minimal relative to the possible loss of control inherent in the choice of a multiple-baseline design.

An experiment incorporating the present design was replicated simultaneously with two groups, the double-baseline group and the single-baseline group. A tabular representation of the experimental design employed with these two groups is given in Table 1.

Precedents for the time frames utilized in all phases of this study occur in Van Houten and Sullivan (1975) and Spencer (1977). Scheduling was arranged so that each

TABLE 1

Tabular Representation of the Experimental Design Employed in the Present Investigation

Number of 20-minute sessions	0 - 10	11 - 20	21 - 40
Double-baseline group (N = 11)	A_1 Baseline 1 (observation only) →	A_2 Baseline 2 (observation with unexplained tone) →	A_3 Treatment (teachers are asked to praise when they hear a tone)
Single-baseline group (N = 11)	B_1 Baseline 1 (observation only) →	→ →	B_2 Treatment (teachers are asked to praise when they hear a tone)

Note: A - denotes double-baseline group
B - denotes single-baseline group
The small numbers (1, 2, 3) after the group call letters, denote changes in phases through which each group passes during the experiment.

teacher participated in four daily sessions per week. The time of the day for the sessions varied in accord with the teachers' schedules.

Baseline 1. Both groups participated simultaneously in the first baseline period which involves 10 observation sessions for each of the 22 teachers. Experimental conditions were the same for both groups during this period. The only change from normal classroom routine during this baseline was that an observer was present. The teachers were not aware that the observer was recording their rates of praise and disapproval.

Baseline 2. Only the double-baseline teachers participated in this second baseline period. This period included 10 observation sessions for each of the 11 teachers. During Baseline 2 the treatment apparatus, i.e., the tone sounded by a cassette recorder, was operated in the same manner as in the treatment period, except the purpose of the tone was not explained to the teachers. The teachers were informed only that the observer would be measuring the effect of the tone on classroom behavior.

The purpose of Baseline 2 was to measure any effect of the experimental apparatus, used in isolation, on teacher rates of praise and disapproval.

Treatment. Following Baseline 2 all teachers were informed that their praise rates had been recorded during the two baseline periods and that throughout treatment

their praise rates would continue being recorded. No mention of the continuous recording of disapproval rates throughout all phases of the study was made to the teachers at any time during the study. In addition, the definitions of praise utilized for the present investigation were presented to the teachers, and the teachers were instructed to praise a child, a group of children, or the class as a whole upon hearing each tone delivered by the cassette recorder. As the tones sounded at a mean rate of one per two minutes, each teacher was expected to make at least 10 praise responses during each session of the treatment period. The treatment involved 20 observation sessions for each of the 22 teachers.

Reliability

For the teacher behaviors, i.e., rates of praise and disapproval, occurrence reliability was calculated by an interobserver procedure. Five reliability checks were executed; the first one was calculated at the end of the observer training period, the second on the first day of Baseline 1, the third on the first day of Baseline 2, the fourth on the first day of treatment, and the last on the eleventh day of treatment. Each of these reliability checks was calculated on data collected simultaneously and independently by both observers over 80 minutes of observation time. In the first reliability check, the 80 minutes

comprised two 20-minute sessions with each of two teachers. For each of the remaining four reliability checks, the 80 minutes of observation comprised one 20-minute session with each of four teachers.

CHAPTER 4

RESULTS

Reliability

Interobserver reliability was computed for the five reliability checks included in the present study. Reliabilities were calculated by dividing the number of agreements on the occurrence of a behavior (praise or disapproval) by the number of agreements plus the number of disagreements and multiplying by 100.

The reliabilities obtained during each specific reliability check are given in Table 2. The mean interobserver reliability calculated for praise responses was 94%, with a range of 90.5% to 96.4%. The mean interobserver reliability calculated for disapproval responses is 92.9% with a range of 90.3% to 95.5%.

Teachers' Behaviors

To test the efficacy of the randomization procedure utilized with the 22 teachers, a comparison of the verbal behavior of the two experimental groups was conducted. This analysis revealed that, during Baseline 1, there were no significant differences between either the number of praise responses or the number of disapproval responses

TABLE 2

Interobserver Reliabilities of Praise and Disapproval Ratings

Time of Reliability Check	Number of Praise Responses		Interobserver Reliability of Praise	Number of Disapproval Responses		Interobserver Reliability of Disapproval
	Observer 1	Observer 2		Observer 1	Observer	
End of Training	21	19	90.5%	18	19	94.6%
First Day of Baseline 1	28	27	96.4%	22	21	95.5%
First Day of Baseline 2	30	29	95.1%	19	21	90.5%
First Day of Treatment	87	94	92.5%	31	28	90.3%
Eleventh Day of Treatment	99	104	95.1%	15	16	93.7%

Note: Each reliability check session comprised 80 minutes of observation time.

of the two groups; similarly, during treatment, there were no significant differences between either the number of praise responses of the numbers of disapproval responses of both groups (see Appendix C). These findings indicate that the randomization procedure successfully divided the 22 teachers into two groups that were equivalent on measures of praise and disapproval.

The means, standard deviations, and ranges of the observed praise and disapproval responses of all teachers during the three experimental phases are summarized in Table 3.

Table 3 indicates that, during Baseline 1, disapproval responses occurred more frequently with both groups of teachers than did praise responses ($\bar{X}$ = 59.40 - $\bar{X}$ = 38.50, respectively; t [21] = 4.34, $p < .001$). The result supports Hypothesis 1: That teachers' natural rates of disapproval are higher than their natural rates of praise.

The analysis of praise and disapproval responses during Baseline 2 involved a one-way repeated measures analysis of variance and subsequent Newman-Keuls comparisons conducted on the double-baseline group's praise and disapproval responses emitted during Baseline 1, Baseline 2, and treatment. These analyses confirmed that the praise responses of the double-baseline group did not change significantly from Baseline 1 to Baseline 2 ($\bar{X}$ = 36.36 - $\bar{X}$ = 30.50, respectively). These analyses also indicated that the disapproval responses of the double-baseline group

TABLE 3

Praise and Disapproval Responses for all Observation Periods

Teacher Responses and Observation Period	Combined Groups			Double-Baseline Group			Single-Baseline Group		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
Baseline 1 Praise Responses	22	38.50	14.90	11	36.36	14.36	11	40.64	15.81
Baseline 1 Disapproval Responses	22	59.40	26.93	11	63.63	28.34	11	55.18	26.09
Baseline 2 Praise Responses	11	30.50	14.69	11	30.50	14.69			
Baseline 2 Disapproval Responses	11	54.27	25.10	11	54.27	25.10			
Treatment Praise Responses	22	170.63	33.18	11	168.82	30.11	11	170.46	37.39
Treatment Disapproval Responses	22	41.59	25.70	11	45.81	24.37	11	37.36	27.48

decreased significantly from Baseline 1 to Baseline 2 ($\bar{X}$ = 63.63 - $\bar{X}$ = 54.27, respectively; F [2,42] = 5.40, $p < .01$; Q [20] = 3.30; $p < .05$).

For the treatment period significance tests confirm that praise responses were emitted by both groups of teachers significantly more frequently during treatment than during Baseline 1 ($\bar{X}$ = 170.63 - $\bar{X}$ = 38.50, respectively; t [21] = 23.11, $p < .001$). Table 3 also illustrates that during treatment the numbers of praise responses of the double-baseline group were higher than the numbers of praise responses of this group during Baseline 2 ($\bar{X}$ = 168.82 - $\bar{X}$ = 30.55, respectively). A one-way repeated measure analysis of variance of all three praise values of the double-baseline group suggested that this comparison was significant, F (2,42) = 226.34, $p < .001$. Subsequent Newman-Keuls multiple comparisons confirmed that the mean number of praise responses during treatment was significantly higher than the mean number of praise responses during Baseline 2 (Q [20] = 35.82, $p < .01$). Taken together, the analyses of the praise responses of the two groups over Baseline 1, Baseline 2 and treatment support Hypothesis 2: That teachers' praise rates will increase significantly as a result of instruction to emit praise responses following each auditory que.

An examination of the disapproval responses summarized in Table 3 reveals a pattern of results entirely

different than that for praise responses. Significance tests confirm that both groups of teachers emitted fewer disapproval responses during treatment than during Baseline 1 ($\bar{X}$ = 37.36 - $\bar{X}$ = 55.18, respectively; t [10] = 4.68, $p < .005$). Table 3 also indicates that the double-baseline group emitted lower numbers of disapproval responses during treatment than during Baseline 2 ($\bar{X}$ = 45.81 - $\bar{X}$ = 54.27, respectively). A one-way repeated measures analysis of variance of all disapproval values of the double-baseline group indicated that this effect was significant, F (2,42) = 5.40, $p < .01$. Subsequent Newman-Keuls multiple comparisons revealed that the numbers of disapproval responses during treatment were significantly lower than the numbers of disapproval responses during Baseline 2 (Q [20] = 2.98, $p < .05$).

Considered together, analyses of disapproval responses of both baseline groups support Hypothesis 3: That teacher disapproval rates will decrease concomitantly as teacher praise rates are increased through training. However, support for this third hypothesis is qualified by the unanticipated significant decrease in the disapproval responses of the double-baseline group from Baseline 1 to Baseline 2.

(A graphic representation of the praise and disapproval responses of all teachers combined for each of the forty experimental sessions is contained in Appendix D.)

CHAPTER 5

DISCUSSION

From a broader perspective, the investigation suggests that several generalizations may be made about teachers' praise and disapproval behavior.

The analyses of praise and disapproval responses during Baseline 1 suggests that teachers' natural rates of disapproval are higher than their natural rates of praise. This result corroborates the findings of Thomas et al. (1968) and White (1975). The result is especially interesting in relation to the evidence that higher numbers of praise responses and lower numbers of disapproval responses are effective in shaping desirable classroom behaviors (e.g., Cossairt et al., 1973; Madsen, Becker & Thomas, 1968; Thomas et al., 1968).

The reasons why many teachers tend to emit higher numbers of disapproval responses than praise responses were not addressed in the present study, but the available evidence suggests that the effectiveness of behavior modification programs designed to facilitate desirable classroom behaviors may be as much a product of decreasing the naturally occurring frequency of disapproval responses as increasing the frequency of praise responses. Additional

research involving the separation of these two aspects of behavior may provide a more precise explanation of the efficacy of behavior modification approaches to this problem.

The analysis of praise and disapproval responses during Baseline 2 indicated that there was no significant difference in numbers of praise responses emitted by the double-baseline teachers during the first and second baseline periods. In contrast, the numbers of disapproval responses of the double-baseline teachers decreased significantly from the first to the second baseline period. This particular decrease in disapproval responses was not anticipated. It was anticipated that the simple introduction of a randomly occurring auditory tone may disrupt the behavior of the children in the class, and that this change might occasion a concomitant change in the behavior of the teacher. A search of the cueing literature revealed no information about the behavioral consequences of introducing an unexplained tone stimulus in a classroom setting. Consequently, Baseline 2 was added to the design to monitor the effects of introducing an unexplained tone stimulus in a classroom setting. The unanticipated aspect of the results for the second baseline is that the significant change was restricted to one variable, disapproval.

It may be hypothesized that the decline in disapproval responses during Baseline 2 was related to the continued presence of an observer. Teachers may have become more relaxed and less critical of student behaviors as they adapted to the presence of an observer. A second explanation for this particular decline in disapproval responses is that the period of time allotted for the first baseline was not sufficient to permit disapproval responses to stabilize. Further research is necessary to reveal the specificity of the source(s) of variance that influenced the decline in disapproval rates during the second baseline period. Because the significant change in disapproval responses during Baseline 2 was not anticipated, only one group of teachers participated in Baseline 2. Subsequent attempts to identify the variables associated with the observed decline in disapproval responses during Baseline 2 should include in the experimental design control conditions that will permit differentiation between the unexplained audio-cueing apparatus and the extended presence of an observer as possible sources of variance.

The analysis of the treatment group indicated that both groups of teachers praised students more frequently during treatment than during either Baseline 1 or Baseline 2. This result corroborates those reported by Spencer (1977) and Van Houten and Sullivan (1975), and it supports the hypothesis that teachers' praise rates will increase

significantly as a result of instruction to emit praise responses following each auditory cue.

Because audio-cueing for praise is presented in every session of the treatment phase, it seems likely that the audio-cueing training technique itself, and not any coincidental source of variance effected the marked increases in praise from Baseline 1 to treatment with both groups of teachers. The following factors provide additional support for the validity of attributing increases in teachers' praise rates during treatment to the training technique employed in the present study: (a) increases in praise responses for both groups of teachers from Baseline 1 to treatment were highly significant ($p < .001$); (b) both groups emitted similar low numbers of praise responses during Baseline 1 and similar high numbers of praise responses during treatment (see Appendix C); (c) the double-baseline group registered no significant increase in praise responses from Baseline 1 to Baseline 2.

The marked increases in teachers' praise responses during treatment suggest that audio-cueing is an effective method of training teachers to increase their praise rates. Since it has already been demonstrated that increases in teachers' praise rates tend to produce increases in appropriate student behaviors (e.g., Becker et al., 1967; Broden et al., 1970; McAllister et al., 1969; Madsen,

Becker & Thomas, 1968; Ward & Baker, 1968), audio-cueing can be a valuable aid to teachers, practitioners and/or researchers attempting to effect positive behavior changes in teachers and/or students.

The finding of the present study that the number of disapproval responses of both groups of teachers during treatment was significantly lower than the number of disapproval responses of both groups of teachers during either Baseline 1 or Baseline 2 supports Hypothesis 3: That teacher disapproval rates will decrease concomitantly as teacher praise rates are increased through training. However, the general support for this third hypothesis must be qualified by the observation that the numbers of disapproval responses of the double-baseline group declined orthogonally from Baseline 1 to treatment. This result indicates that the unanticipated source of variance associated with a significant decline in teachers' disapproval responses from Baseline 1 to Baseline 2 may also have influenced the disapproval behaviors observed during the treatment period. There is some indication that this unidentified source of variance may not have been a significant influence in the lowered disapproval rates during treatment; that is, the single-baseline group was not associated with the presentation of unexplained tones, yet, like teachers in the double-baseline, they too decreased significantly the numbers of disapproval responses

emitted during treatment. In addition, the lower numbers of disapproval responses emitted by both groups during the treatment period did not differ significantly.

Although the present design did not incorporate a treatment control group, it may assist subsequent investigators to note that, during the treatment period of the present study, all staff members of all the experimental schools were completely aware of the training techniques employed with the experimental teachers. This observation confirms the previously stated opinion that, in this particular study, it would have been extremely difficult to establish a control group of teachers who would have remained unaware of the experimental variables and retained their natural rates of praise and disapproval, uncontaminated by their frequent interactions with teachers assigned to the experimental condition.

The inverse relationship between praise and disapproval observed in the present investigation is not consistent with the observation of Cossairt et al. (1973) that praise rate changes did not significantly alter disapproval rates. In the literature review section of the present investigation it was noted that the natural disapproval rates of the teachers in the Cossairt et al. (1973) study were much lower than the natural disapproval rates of teachers involved in the studies of Thomas et al. (1978) and White (1975). The teachers in the Cossairt

et al. (1973) study also had much lower natural rates of disapproval than did the teachers in the present investigation. These observed differences support the suggestion that the very low rates of disapproval emitted by the Cossairt et al. (1973) teachers may have created a "floor effect" that precluded the recording of a significant decline in disapproval responses.

The indication in the present study, that a relationship exists between increased rates of teacher praise and subsequent decreased rates of teacher disapproval, generates important theoretical and educational implications.

Theoretically, teacher disapproval behavior may operate as a confounding variable in some studies concerned with the effects of increased teacher praise on student behavior. Specifically, investigations that have not controlled the possible effects of teacher disapproval behavior may have erroneously confounded variance due to this source with variance that is particular to increased praise. Verification of such a confounding variable would substantially alter the currently accepted explanations of the behavioral consequences of praise.

Educationally, teacher disapproval would have to be considered in any programs designed to encourage teachers to increase their praise rates in order to effect behavior changes in students. During a program involving manipulation

of praise behavior, a teacher's disapproval behavior may remain constant (as in the Cossairt et al., 1973, study), decrease (as in the present investigation), or increase. The pattern of any teacher's disapproval behavior could be instrumental in either facilitating or, unwittingly, inhibiting the effects of increased praise behavior on subsequent student behavior.

REFERENCES

Becker, W.C., Madsen, C., Arnold, C. & Thomas, D. Contingent use of teacher attitudes and praise in reducing classroom behavior. Journal of Special Education, 1967, 1, 287-307.

Broden, M., Bruce, C., Mitchell, M.A., Carter, V. & Hall, R.V. Effects of teacher attention on attending behavior of two boys at adjacent desks. Journal of Applied Behavior Analysis, 1970, 3, 199-203.

Catania, A.C. & Reynolds, G.S. A quantitative analysis of responding maintained by interval schedules of reinforcement. Journal of the Experimental Analysis of Behavior, 1968, 2, 327-383.

Clark, H.B., Macrae, J.W., Ida, D.M. & Smith, N.R. The role of instructions, modelling, verbal feedback, and contingencies in the training of classroom teaching skills. In E. Ramp & G. Semb (eds.), Behavior Analysis: Areas of Research and Application. New Jersey: Prentice-Hall, Inc., 1973.

Cossairt, A., Hall, R.V. & Hopkins, B.L. The effects of experimenter's instructions feedback and praise on teacher praise and student attending behavior. Journal of Applied Behavior Analysis, 1973, 6, 89-100.

Hall, R., Danyan, M., Rabon, D. & Broden, M. Instructing beginning teachers in reinforcement procedure which improve classroom control. Journal of Applied Behavior Analysis, 1968, 1, 315-322.

Hall, R.V., Lund, D. & Jackson, D. Effects of teacher attention on study behavior. Journal of Applied Behavior Analysis, 1968, 1, 1-12.

Jones, F.H. & Miller, W.H. The effective use of negative attention for reducing group disruption in special elementary school classrooms. The Psychological Record, 1974, 24, 435-448.

Kennedy, W.A. & Willcutt, H.C. Praise and blame as incentives. Psychological Bulletin, 1964, 62, 323-332.

Madsen, C.H., Becker, W.C. & Thomas, D.R. Rules, praise and ignoring: Elements of elementary classroom control. Journal of Applied Behavior Analysis, 1968, 1, 139-150.

Madsen, C.H., Becker, W.C., Thomas, D.R., Koser, Linda & Plager, Elaine. An analysis of the reinforcing function of "sit down" commands. In Parker, R.K. (ed.), Readings in Educational Psychology. Boston: Allyn and Bacon, 1968.

McAllister, L., Stachowiak, J., Baer, D. & Conderman, L. The application of operant conditioning techniques in a secondary school classroom. Journal of Applied Behavior Analysis, 1969, 2, 227-285.

O'Leary, K.D. & Becker, W.C. The effects of a teacher's reprimands on children's behavior. Journal of School Psychology, 1968, 7, 8-11.

Parsonson, S., Baier, A.M. & Baer, D.M. The application of generalized correct social contingencies: An evaluation of a training program. Journal of Applied Behavior Analysis, 1974, 7, 427-437.

Rule, S.A. Comparison of three different types of feedback on teachers' performance. In G. Semb (ed.), Behavior Analysis and Education. Lawrence: University of Kansas Press, 1972.

Saudargas, K.A. Setting criterion rates of teacher praise. The effects of videotape feedback in a behavior analysis follow-through classroom. In G. Semb (ed.), Behavior Analysis and Education. Lawrence: University of Kansas Press, 1972.

Schuttle, R.C. & Hopkins, B.L. The effects of teacher attention on following instructions in kindergarten class. Journal of Applied Behavior Analysis, 1970, 3, 117-122.

Spencer, Glenda M. The Effects of Audio Cueing on the Rate of Teacher Praise. Unpublished master's thesis, Memorial University of Newfoundland, 1977.

Thomas, D.R. Preliminary findings on self-monitoring for modifying teacher behaviors. In E. Ramp & B. Hopkins (eds.), A New Direction for Education: Behavior Analysis (Vol. 1). Lawrence: University of Kansas Press, 1971.

Thomas, D.R., Becker, W.C. & Armstrong, M. Production and elimination of disruptive classroom behavior by systematically varying teacher's behavior. Journal of Applied Behavior Analysis, 1968, 1, 35-45.

Thomas, J.D., Presland, I.E., Grant, M., Dily, S. & Glynn, Ted L. Natural Rates of Teacher Approval and Disapproval in Grade 7 Classrooms, 1978, II, 91-94.

Van Houten, R. & Sullivan, K. Effects of an audio cueing system on the rate of teacher praise. Journal of Applied Behavior Analysis, 1975, 8 (2), 197-201.

Ward, M.J. & Baker, B.L. Reinforcement therapy in the classroom. Journal of Applied Behavior Analysis, 1968, 1, 323-328.

White, M.A. Natural rates of teacher approval and disapproval in the classroom. Journal of Applied Behavior Analysis, 1975, 8, 367-372.

Zeiler, M.D. Fixed and variable schedules of response-independent reinforcement. Journal of the Experimental Analysis of Behavior, 1968, 2, 405-414.

APPENDIX A

Supplementary Description of Participating Teachers

DOUBLE-BASELINE GROUP

Elementary School	Grade	Sex
Goulds	Kindergarten	Female
Goulds	One	Female
Goulds	Two	Female
Virginia Park	Two	Female
Vanier	Two	Female
Goulds	Three	Female
Virginia Park	Four	Female
Virginia Park	Four	Female
Vanier	Four	Male
Vanier	Five	Male
Goulds	Five	Female

SINGLE-BASELINE GROUP

Elementary School	Grade	Sex
Vanier	Three	Female
Virginia Park	Three	Female
Virginia Park	Three	Female
St. Mary's	Three	Female
Goulds	Three	Female
Vanier	Four	Female
St. Mary's	Four	Female
Vanier	Five	Male
Goulds	Six	Male
Goulds	Six	Male
Vanier	Six	Female

APPENDIX B

SAMPLE RECORD FORM

SCHOOL _____ TEACHER _____

GRADE _____ DATE _____ RECORDER _____

SESSION NO. _____ TAPE NO. _____

INTERVAL NO.	TOTAL	+	-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

APPENDIX C

Comparisons of Praise and Disapproval Responses for Two Experimental Groups

Group	N	Teacher Behavior	Observation Period	$\bar{X}$	SD	t value
Group A	11	Praise	Baseline 1	36.36	14.36	t (20) = .66, p > .05
Group B	11	Praise	Baseline 1	40.63	15.81	
Group A	11	Disapproval	Baseline 1	63.63	28.34	t (20) = .73, p > .05
Group B	11	Disapproval	Baseline 1	55.18	26.09	
Group A	11	Praise	Treatment	168.82	30.11	t (20) = .25, p > .05
Group B	11	Praise	Treatment	172.46	37.39	
Group A	11	Disapproval	Treatment	45.81	24.37	t (20) = .76, p > .05
Group B	11	Disapproval	Treatment	37.36	27.48	

Note: Group A is the double-baseline group
Group B is the single-baseline group

APPENDIX D

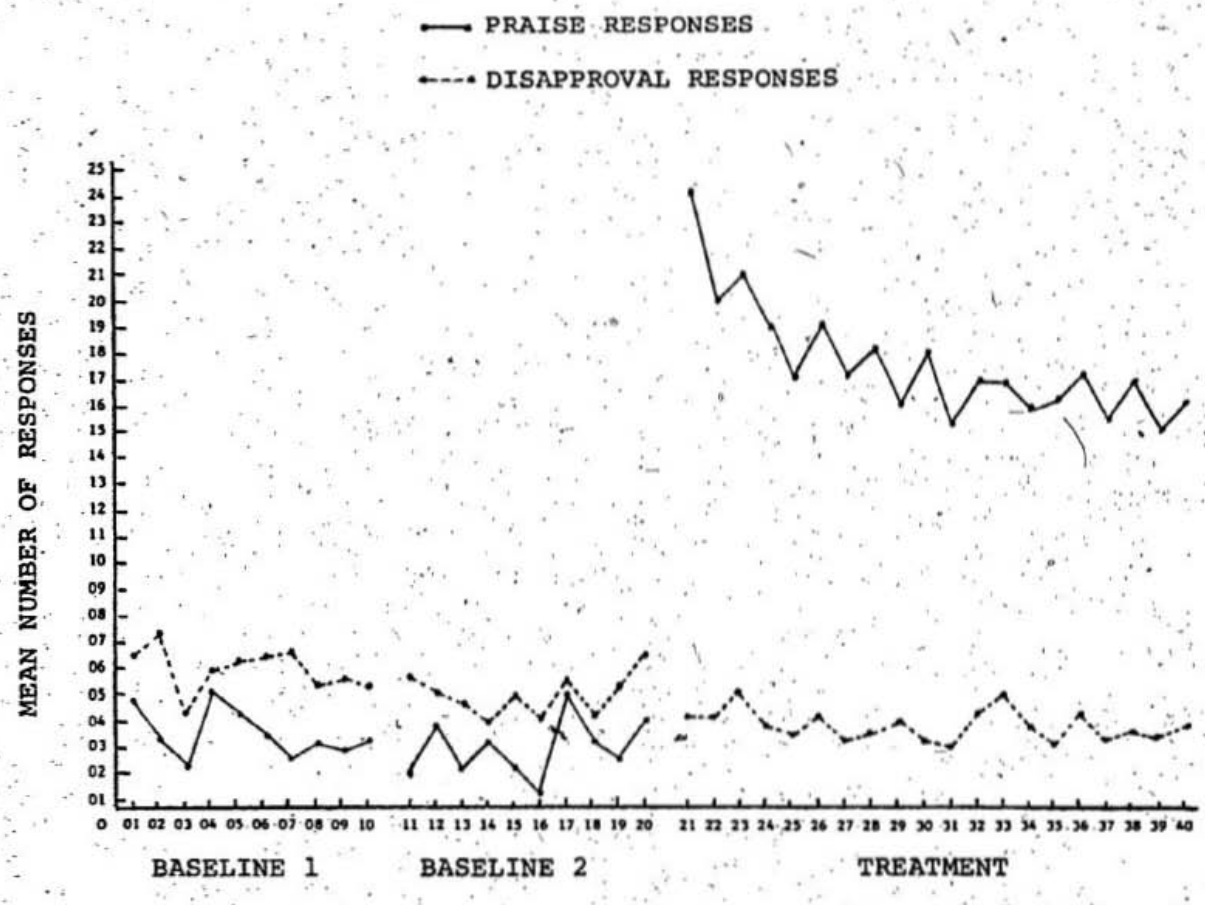

Figure 1. Mean numbers of praise and disapproval responses of all teachers combined during each observation session.