

*THE EFFECTS OF EXPERIMENTER'S INSTRUCTIONS,
FEEDBACK, AND PRAISE ON TEACHER PRAISE AND
STUDENT ATTENDING BEHAVIOR¹*

ACE COSSAIRT,² R. VANCE HALL, AND B. L. HOPKINS

UNIVERSITY OF KANSAS

Systematic use of experimenter's instructions, feedback, and feedback plus social praise was used to increase teacher praise for student attending behavior of three elementary school teachers. Experimenter's verbal interactions with teachers, teacher's verbal praise for student behaviors, and pupil attending behavior were recorded during baseline conditions. As the three successive experimental conditions were introduced first with Teacher A, then with Teacher B, in a multiple baseline design, behaviors of the experimenter, the two teachers, and eight students were measured and recorded. In the cases of Teachers A and B, experimental condition one (Instructions) and experimental condition two (Feedback) produced inconclusive results. Experimental condition three (Feedback Plus Social Praise) produced more teacher praise for student attending behavior. The entire "Package" of Experimenter's Instructions, Feedback, and Feedback Plus Social Praise was introduced to Teacher C in a single experimental condition. As in the cases of Teachers A and B, behaviors measured were: (1) the experimenter's verbal interactions, (2) the teacher's praise of students, and (3) the student's attending behavior. Introduction of the "Package" also produced more teacher praise for student attending behavior.

A number of recent studies have investigated the effects of contingent teacher attention on various student behaviors, *i.e.*, attending, instruction following, verbal, and disruptive behavior in the public school classroom (Hall, Lund, Jackson, 1968; Hall, Panyan, Rabon, and Broden, 1968; Shutte and Hopkins, 1970; Thomas, Becker, and Armstrong, 1968). Results of these studies demonstrate teacher attention in most cases is an inexpensive and effective modifier of student behaviors. While these studies show that contingent teacher attention is effective, few

studies have examined procedures for modifying this important teacher behavior. Cooper, Thomson, and Baer (1970), used a consistent training procedure to modify teacher attending in pre-school settings.

Formal instruction in classroom management procedures has resulted in teachers effectively using contingent teacher attention and carrying out studies with themselves as the observer-experimenter (Hall, Fox, Willard, Goldsmith, Emerson, Owen, Davis, and Porcia, 1971).

Articles published by classroom teachers enrolled in a university course on management of classroom behavior (Hall, Cristler, Cranston, and Tucker, 1970) demonstrate that formal instruction in operant methods of classroom management, measurement, and application has proved to be an effective way to modify teacher behavior. However, many teachers have no access to such classes.

¹The research was carried out as part of the Juniper Gardens Children's Project, a program of research on the development of culturally deprived children, and was partially supported by the National Institute of Child Health and Human Development, Bureau of Child Research and Department of Human Development, University of Kansas (Grant HD 03 144-04). This research was also supported in part by a grant from the United States Office of Education under the Education Professions Development Act, University of Kansas "T.T.T." program within the Department of Human Development and Family Life, and is identified as an Early Childhood Project, Training Teachers in Behavior Modification.

²Reprints may be obtained from Ace Cossairt, Juniper Gardens Children's Project, 2021 North Third St., Kansas City, Kansas 66101.

Principals, teacher supervisors, school psychologists, and consultants often use instructions and demonstrations in attempts to change teacher behavior, sometimes without effect (Hall, *et al.*, 1968). O'Leary, Becker, Evans, and Saudargas (1969) used feedback plus social reinforcement of a teacher to ensure that experimental instructions to teachers were carried out. The present study examined the effectiveness of systematic use of instructions, feedback, and a combination of social praise and feedback in increasing teacher praise for student attending behavior; approaches that lend themselves to use by educators responsible for supervising and helping teachers.

The major purpose of this experiment was to study the causal factors in increasing teacher praise by measuring and recording behaviors of all concerned, including the often omitted experimenter's verbal interaction with the teacher. This study featured an examination of the complete chain of behaviors from experimenter through teacher through student.

The basic paradigm of design for this study was the multiple baseline (Baer, Wolf, and Risley, 1968) utilizing multiple subjects (teachers). After concurrent baselines of behaviors were recorded, three experimental conditions that included instructions, feedback, and feedback plus social reinforcement were introduced to Teachers A and B at different points in time, providing a means for component analysis within this study.

PROCEDURE

Subjects and Setting

This study was carried out in two elementary schools in a low socio-economic area of Kansas City, Kansas. Two fourth-grade teachers and one third-grade teacher participated in this study. Teacher A had 4 yr teaching experience, teacher B had 2 yr experience, and teacher C had 3 yr of classroom teaching experience. The three teachers had no knowledge of experimental conditions or hypotheses before these conditions

were implemented. All three teachers were effective in controlling their classes and little disruptive behavior occurred in their classrooms as this study was carried out.

Each teacher selected four students of low attending and instruction-following behavior. These students were seated at the same table in the classroom to enable more reliable observation of their behavior. Target students selected for this study included five boys and seven girls.

Experimental Procedures

Data were recorded twice daily as students alternately worked one of two specially prepared math sheets. Each math sheet consisted of five rows of four simple addition and subtraction problems without signs. The problems on the two math sheets remained constant throughout the experiment. General instructions for each math sheet were as follows: "Please, look at me during instructions, keep covers closed when not working problems and use signs on all problems that you work." The specific instructions were changed on each sheet. The teachers read the specific instructions aloud for each row to the class. An example of the specific instructions given is: "Add the first problem, subtract the second problem, leave out the third problem, add the fourth problem—Begin." The students then opened their folders and followed the instructions for the first row of problems and closed their folders as they finished. Similar instructions were given for each of the five rows on the math sheet. These math sessions were approximately 15 min in length. Observational data on student attending behavior were taken only during teacher's specific instructions.

One minute of post-instruction time was allowed for the students to work each row of problems. During this post-instruction interval, any comments by the teacher were recorded by the observer. A "+" was recorded for verbal teacher praise for attending. A "1" was recorded for verbal teacher attention for non-attending, and a "0" was recorded for no verbal comment from the teacher. Teacher praise for attending

behavior was defined as any positive or praise statement about student attending behavior. Examples are: (1) "I like the way John is paying attention", (2) "The whole class is doing an excellent job of listening today", (3) "I see Jane is paying attention", and (4) "John and Bill are paying attention today". Teacher attention to non-attending behavior was defined as any (1) verbalization requesting, demanding, or commanding attention, (2) reprimanding for non-attending or disruptive behaviors; *e.g.*, requests or commands such as: "Sit down", "Look here", "Be quiet", "Put your book away", and "You are not paying attention, Jane!". Disruptive behaviors were defined as any behavior that competed or interfered with work on the math sheet or with attending to the teacher during instruction. Talking, whistling, singing, throwing things, making physical contact with other students, and leaving seats during instructions were considered disruptive behaviors. Teacher statements directed toward herself, the observer, the experimenter, and non-members of the classroom, as well as any other statements not directed toward class members, were recorded as no verbal comment.

Student attending was defined as student's head and eyes oriented toward teacher for the duration of instruction. The per cent of intervals students attended the teacher was computed by dividing the total intervals that students attended to the teacher by the total number possible. The number of intervals of teacher praise for student attending and for non-attending was recorded and graphed as totals and not percentages. During the series of four instructions given per row of problems, the four target students were observed one by one in a clockwise sweep of their table. Each target student was observed for the duration of one instruction. The observation of the first student coincided with the duration of the first instruction, observation of the second student with the second instruction, of the third student with the third instruction, and of the fourth student with the fourth instruction. This method produced good

reliability of observation in that both observers were cued by the instructions to look at the same student simultaneously.

During each post-instruction minute, teacher's statements praising student attending behavior were recorded, along with teacher's statements concerning student non-attending behavior. This was done by using observational recording sheets that had a row of squares where intervals of student attending behavior were recorded, and a corresponding grid of squares for teacher attention to target students. In addition to the double row of squares provided for each target student, a single row of squares was used to record teacher attention to the class. Due to difficulty in recording these complex multiple statements, reported data indicate only the number of intervals that contained teacher praise for attending, or verbal attention for non-attending, as per the original design.

A second observer periodically made a simultaneous observational record during each phase of the experiment using an identical score sheet. Agreements were based on whether or not intervals contained praise. Per cent of agreement of intervals containing praise or attention between observers was computed with the following formula: $\frac{\text{Intervals of agreement}}{\text{Intervals of non-agreement} + \text{Intervals of agreement}} \times 100$.

The experimenter had a post-session conference with the teacher after each session throughout the experiment. The experimenter recorded each post-session conference with the teacher, using a cassette tape recorder. Tapes were played back and the durations of these post-session conferences were recorded, as well as the number of the experimenter's positive comments for teacher praise, on a second recording sheet. The experimenter purposely made separate and complete sentences to facilitate a reliable count of contingent praise statements to teachers.

The experimenter's social praise for teacher praise was defined as any positive and contingent statement about the teacher's use of teacher praise to student attending. Examples of the

experimenter's contingent praise statements are: (1) "You had the whole class attending to you, Mrs. A.", (2) "John was really responding to your attention, Miss B.", (3) "You certainly have the ability to hold their attention with your praise", (4) "Your praise is powerful. The target students really respond to you."

To determine the extent to which taped data were reliably transferred from tapes to recording sheets, a second observer independently listened to the tape and periodically recorded the duration of the experimenter-teacher conference, along with the number of praise statements by the experimenter, on an identical recording sheet. This was done in each phase of the experiment. Per cent of agreements was computed as the number of agreements divided by the number of agreements plus disagreements times 100.

Reliabilities were taken in each phase of the experiment on teacher praise, intervals of student attending, and experimenter's praise. Reliability was checked 34 times in Teacher A's classroom, and 33 times in Teacher B's classroom. Reliability ranged from 80% to 100%. The 80% reliability was recorded only once during the experiment, and the means of all reliabilities taken was 93%.

Experimental Conditions

Baseline conditions. Baseline conditions for all three teachers consisted of recording: (1) per cent of intervals that students attended to the teacher, (2) number of intervals of teacher praise for student attending, and (3) number of intervals of teacher attention to non-attending, as the teacher read the instructions for each math sheet. This was done to determine objectively the operant levels of each of the previously named behaviors before instituting experimental conditions. Baselines for Teachers A and B ran concurrently for the first 10 sessions. In Session 11, Teacher A was introduced to condition one (Instructions Condition). Teacher B's baseline was 20 sessions long.

Instructions. The Instructions Condition consisted of three parts: (1) a brief explanation that positive teacher attention contingently applied is effective in changing student behaviors, (2) instructions to give teacher praise to students who attended teacher instructions, (3) a type-written message reminding the teacher that, "teacher praise for attending instructions sometimes increases instruction-attending behavior". This message was included on each instruction sheet used by the teachers during the Instructions Condition, whereas, parts one and two were antecedents to the first session of the Instructions Condition and were presented only once. The Instructions Condition was in effect with Teacher A for Sessions 11 through 28, for a total of 18 sessions. A substitute teacher replaced Teacher A for Sessions 21 through 26. The substitute was given the same explanation and instructions for the Instructions Condition that were given to Teacher A. The Instructions Condition was in effect for Teacher B for Sessions 21 through 36 for a total of 16 sessions.

Feedback condition. During the Feedback Condition, Teachers A and B were given verbal feedback at the end of each session. This feedback consisted of the experimenter telling the teacher the number of intervals during which the students attended her instructions and the number of intervals of teacher praise for student attending behavior. The Feedback Condition was in effect for Teacher A during Sessions 29 through 36 for a total of eight sessions. It was in effect with Teacher B during Sessions 37 through 44, also for a total of eight sessions.

Feedback plus social praise condition. In this phase, the teachers were given social praise for their praise of student behavior, along with a verbal report of the number of intervals of student attending and the number of intervals of teacher praise. The Feedback Plus Social Praise Condition for Teacher A was in effect during Sessions 37 through 60 for a total of 23 sessions. For Teacher B, it was in effect during Sessions 45 through 60 for a total of 15 sessions. Both teachers received feedback and social praise

during each post-session conference with the experimenter for the first eight sessions of their respective Feedback Plus Social Praise Conditions. Beginning with Session 9 of this phase, they received only intermittent feedback and social praise for the remainder of the experiment. Thus, Teacher A was put on an intermittent schedule of feedback plus social praise beginning with Session 45 and this intermittent schedule was in force through Session 60. Teacher B's intermittent schedule of reinforcement began with Session 53 and continued through Session 60.

Baseline condition, Teacher C. Teacher C's baseline was 10 sessions long and was carried out using the same procedures as were used with Teachers A and B.

"Package" condition, Teacher C. All experimental conditions were introduced simultaneously to Teacher C as a "package". This "Package" condition included Instructions, Feedback, and Social Praise Plus Feedback similar to the conditions introduced separately to Teachers A and B. It was 10 sessions in length and included Sessions 11 through 20.

RESULTS

Graphic records of behaviors of Teachers A and B, their target students, and the experimenter are shown in Figure 1. Teacher C's praising behavior, her student's behavior, and the experimenter's behavior are shown in Figure 2.

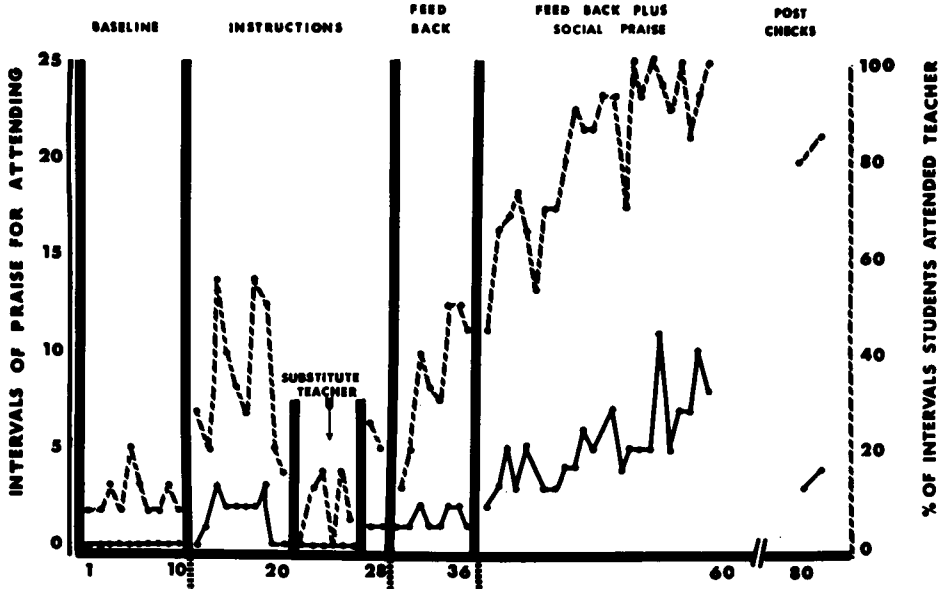
During Baseline, the mean per cent of students attending Teacher A was 7%; the mean per cent of students attending Teacher B during Baseline was 16%. Neither Teacher A nor B gave any teacher praise for appropriate attending during Baseline conditions. The experimenter deliberately did not comment on teacher attention during Baseline nor in the first two experimental conditions. After the Instructions Condition was introduced, Teacher A's rate of positive attention to student attending rose from 0 to a mean of 1.4 intervals for 12 sessions of the Instructions Condition. The mean per cent of intervals students attended Teacher A during

the Instructions Condition increased to a mean of 31% from the baseline mean of 7%. Graphed data on Figure 1 include substitute teacher data, her praise for the student attending, and student attending percentages. All reported means exclude these data and are based on the 12 sessions that Teacher A was present in the classroom. As shown in Figure 1, Teacher B's Baseline rate of teacher praise for student attending, along with the per cent of student attending to her, remained stable through Session 20. The introduction to the Instructions Condition to Teacher A initially produced teacher praise for student attending. Coinciding with increased teacher praise were higher percentages of intervals in which students attended teacher not noted during concurrent Sessions 10 through 20 of Teacher B's Baseline. Instructions to Teacher B produced no significant changes in Teacher B's behavior. Teacher praise for student attending remained at 0 throughout the 16 sessions of the Instructions Condition. Intervals of student attending increased from a mean per cent of 31 during Baseline to a mean per cent of 36 during the Instructions Condition.

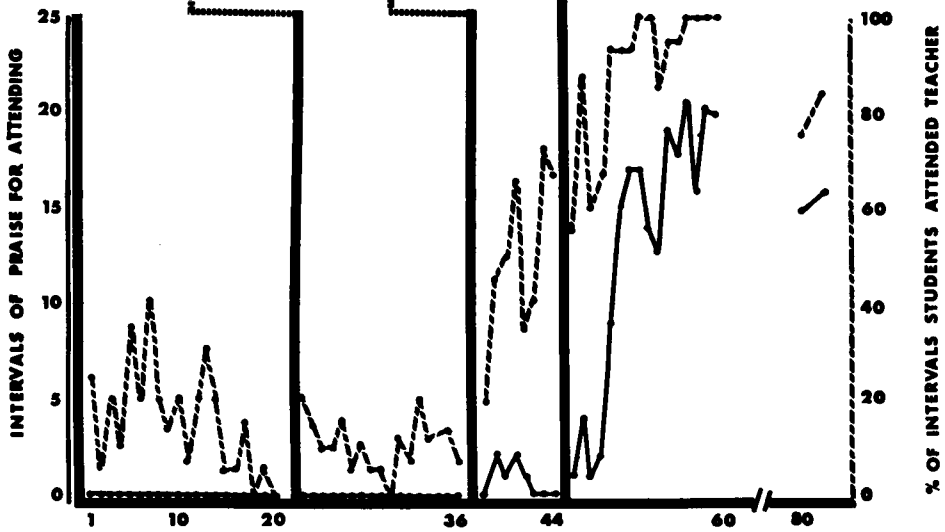
The Feedback Condition showed a decrease in the mean rate of Teacher A's praise from the Instructions Condition, as noted in Table 1. The institution of the Feedback Condition to Teacher B initially produced teacher praise for attending, which had previously remained at 0 through the Baseline and Instructions Conditions. The mean rate of this behavior was one instance of teacher praise per session for the eight sessions of Feedback Condition. Intervals of student attending increased to a mean of 47% in Teacher B's Feedback Condition.

Feedback Plus Social Praise resulted in an immediate increase in Teacher A's praise for student attending. Teacher A's mean number of intervals of teacher praise rose to five per session during this phase, and intervals of student attending behavior increased from a mean per cent of 36 per session in the Feedback Condition to a mean of 85%. The experimenter's mean number of positive comments for teacher

TEACHER A



TEACHER B



EXPERIMENTER

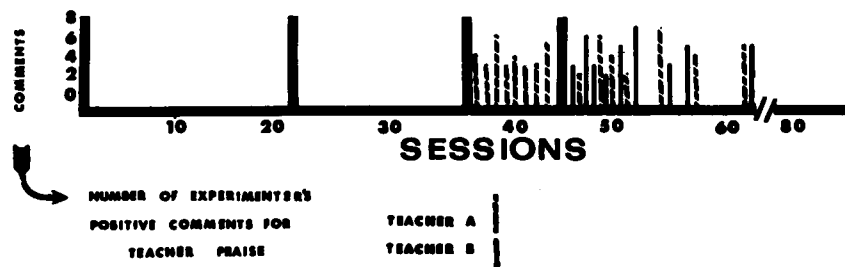


Fig. 1. A graphic record of praising behavior of Teachers A and B, the per cent of students attending each teacher, and the number of experimenter's positive comments for teacher praise.

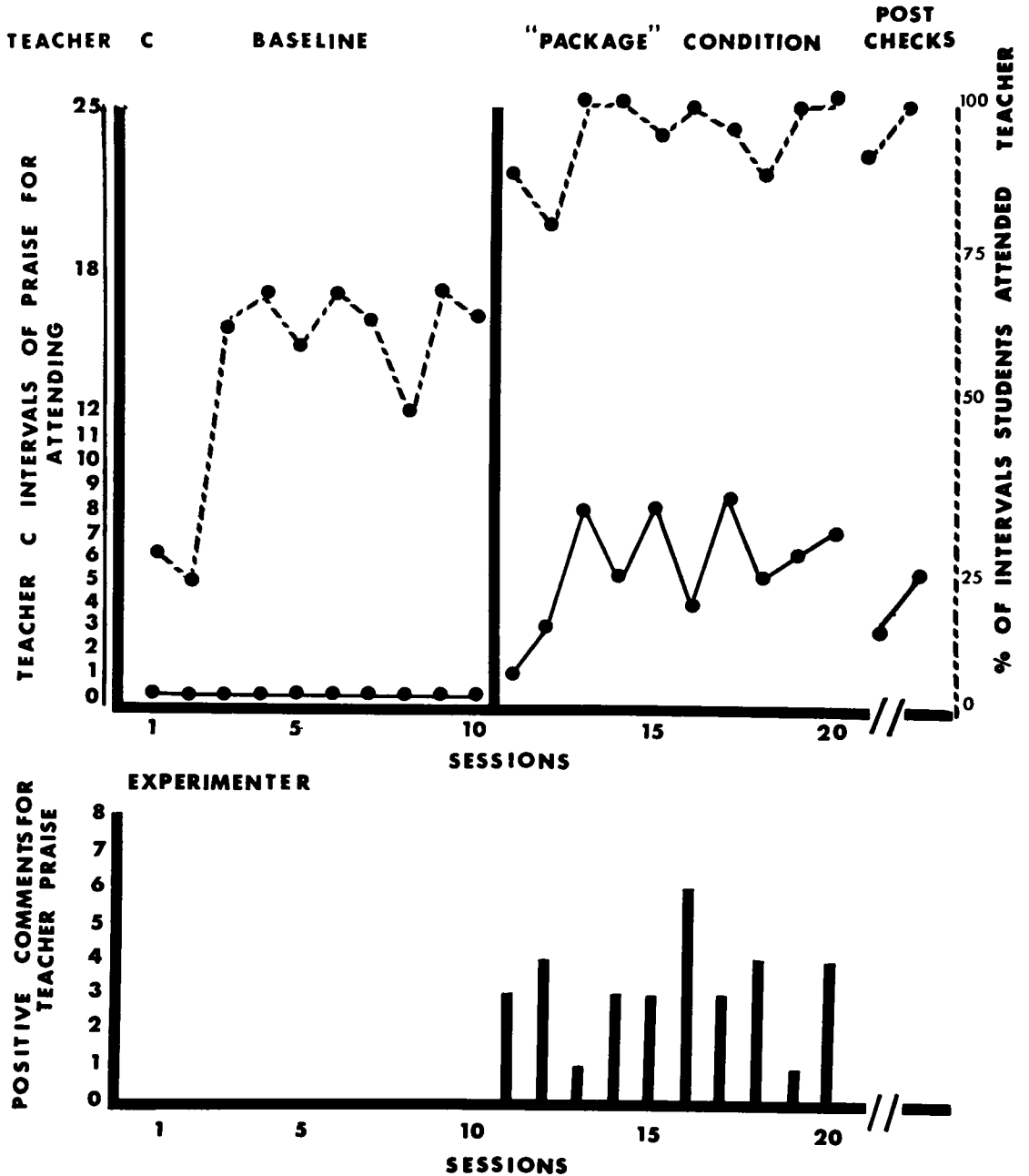


Fig. 2. A graphic record of praising behavior of Teacher C, the per cent of students attending Teacher C, and the number of experimenter's positive comments for teacher praise.

praise was 2.6 per post-session conference with Teacher A.

Feedback Plus Social Praise resulted in an increase in Teacher B's praise from a mean of one per session during the Feedback Condition to a mean of 14.5 per session. The mean per

cent of intervals students attended to Teacher B increased from 47% per session during the Feedback Condition to 86% during the Feedback Plus Social Praise Condition. The mean number of the experimenter's positive comments for teacher praise was 2.1 per session.

Table 1
Means of All Phases

<i>Conditions</i>	<i>Number of Experimenter's Positive Comment for Teacher Praise of Teacher Attending Behavior</i>	<i>Number of Intervals of Teacher Praise for Attending Behavior</i>	<i>Per Cent of Intervals Students Attended Teacher</i>	<i>Number of Intervals of Teacher Attention to Non- Attending Student Behavior</i>
<i>Teacher A</i>				
Baseline	0.0	0.0	7	0.3
Experimental Condition 1: Instructions	0.0	1.4	31	0.6
Experimental Condition 2: Feedback	0.0	0.7	36	0.4
Experimental Condition 3: Feedback + Praise	2.6	5.0	85	0.8
<i>Teacher B</i>				
Baseline	0.0	0.0	16	0.5
Experimental Condition 1: Instructions	0.0	0.0	11	0.8
Experimental Condition 2: Feedback	0.0	1.0	47	0.8
Experimental Condition 3: Feedback + Praise	2.1	14.5	86	0.2
<i>Teacher C</i>				
Baseline	0.0	0.0	62	0.9
Experimental Condition 1: "Package"	3.0	5.0	94	0.4

Teacher C Results

Teacher C's Baseline rate of praise was 0, which was identical to the rates of praise by Teachers A and B during their Baselines. As in the case of Teachers A and B, the experimenter made no comments about teacher attention during Baseline. The mean per cent of intervals students attended Teacher C was 62% during the Baseline sessions. Introduction of the "Pack-

age" Condition of Instructions and Feedback Plus Social Praise resulted in an increase in teacher praise from 0 during Baseline to a mean of five times per session during the "Package" Condition. Intervals of student attending behavior rose during this phase from the Baseline mean of 62% to a mean of 94%. The experimenter averaged three positive comments for teacher praise per session.

Table 2
Mean Per Cent of Intervals Students Attended Teachers per Session within each Condition

<i>Subject</i>	<i>Baseline</i>	<i>Instructions Condition</i>	<i>Feedback Condition</i>	<i>Feedback + Contingent Praise Condition</i>
<i>Teacher A</i>				
AN	16	40	24	90
PA	10	34	55	88
BR	2	30	31	84
TY	0.4	20	34	78
<i>Teacher B</i>				
HE	40	10	54	96
DE	28	22	37	83
AL	6	4	17	81
CB	22	8	75	84
<i>Teacher C</i>				
<i>Subject</i>	<i>Baseline</i>	<i>"Package" Condition</i>		
CU	78	98		
AT	76	98		
TR	46	92		
KE	47.5	88		

Results of permanent product data (specific instructions followed and correct answers to problems) for all three teachers are shown in Table 3.

Post-Checks, Teachers A and B

Two post-checks were taken in Teacher A and Teacher B's classrooms three weeks after termination of continuous observation. The post-checks revealed a decrease in teacher praise for student attending behavior from previous high rates of praise reached by teachers in the later sessions of the Feedback Plus Social Praise Condition. Teacher A's average praise in two post-check sessions was 3.5 compared to a mean of five instances per session for all of the prior phase, and the mean of Teacher B's praise in the two post-checks was 13 compared to 14.5. The mean number of intervals students attended Teacher A during post-checks one and two was 80%; for Teacher B the mean number was 75% during post-check one and 85% during post-check two.

Post-Checks, Teacher C

Post-checks made two weeks after continuous observation of Teacher C was terminated, produced the following means: teacher praise, four per session; per cent of intervals students attended teacher, 97; thus, it was indicated that high rates of teacher praise and intervals of student attending were being maintained.

Individual Results

The mean percentages of intervals individual students attended teachers per session are shown in Table 2. These mean percentages were obtained by dividing the number of intervals in which the students attended the teacher per condition by the total number of intervals possible.

These individual mean percentages are generally qualitatively consistent with the group data (see Table 1). Three of the four students in Teacher A's classroom showed gains in the per cent of intervals they attended with each

Table 3
Individual permanent product means of instructions followed (IF) and problems correct (PC) per condition.

<i>Subject</i>		<i>Baseline</i>	<i>Condition 1</i>	<i>Condition 2</i>	<i>Condition 3</i>
<i>Teacher A</i>					
AN	IF	5.5	9.9	14.3	17.8
	PC	2.5	8.1	12.8	16.8
PA	IF	6.3	8.8	11.4	11.4
	PC	3.6	5.5	9.3	7.7*
BR	IF	7.3	9.9	7.0*	9.2*
	PC	4.3	7.3	5.0*	6.8
TY	IF	12.4	13.8	14.8	14.8
	PC	9.7	12.8	13.8	14.2
<i>Teacher B</i>					
HE	IF	14.2	17.8	19.1	18.9*
	PC	11.7	15.8	17.3	17.6
DE	IF	12.9	17.5	19.2	19.4
	PC	8.3	15.3	17.5	19.1
AL	IF	16.2	19.0	20.0	19.4
	PC	15.8	18.8	19.7	19.1*
CB	IF	4.1	6.2	6.8	10.8
	PC	2.6	5.1	4.6*	5.8
<i>Teacher C</i>					
<i>Subject</i>		<i>Baseline</i>	<i>"Package" Condition</i>		
CU	IF	13.2	16.7		
	PC	12.6	15.7		
AT	IF	12.5	18.4		
	PC	12.4	15.7		
TR	IF	10.4	16.5		
	PC	10.1	15.5		
KE	IF	2.3	14.3		
	PC	1.8	11.8		

*Decrease from a previous condition.

new condition. Student A. N. displayed a decrease in the per cent of intervals she attended during Feedback Condition.

Students H. E., A. L., C. B., and D. E., in Teacher B's classroom, showed decreases in the per cent of intervals they attended from Baseline to Instruction Condition. All four students then displayed concurrent increases in per cent of intervals they attended during Feedback Condition and further increases during Feedback Plus Social Praise Condition.

All of Teacher C's students clearly revealed higher percentages of intervals of attending from Baseline to "Package" Condition.

Permanent Product Data

Permanent product data in the form of the number of specific instructions followed (correct signs used on math sheets) was compiled daily, and the number of correct answers to the math problems was also recorded. These data were maintained on the target students throughout the experiment. The students' mean permanent product data for each phase of the experiment are shown in Table 3.

Individual permanent product means generally increased throughout experimental conditions. All subjects made gains from Baseline

to Instructions Condition. There were seven cases in which means decreased from that of a preceding condition (these decreases are noted with asterisks in Table 3).

DISCUSSION

A major challenge facing principals, teacher trainers, and consultants today is how effectively to promote teacher proficiency to keep pace with the vast and rapidly expanding requirements of the school and post school environments. Principals are in many cases given much administrative training dealing with school finance and with school plant development and management. Too often, little emphasis is placed on behavioral sciences that would aid them in cultivating adept, effective teachers. The primary role of the principal has been stated to be to advance the educational processes through guiding his staff members to more skillful performance in their classrooms (Ulich, 1961). In more specific terms, the principal must effect positive changes in the teacher's teaching behavior in the classroom so that teachers can in turn initiate and maintain positive changes in student behaviors.

Component analysis of three common modes that principals and consultants might use to effect such behavior changes in teachers were examined in this study. As shown in Figure 1, the data indicated that instructions (antecedents) produced inconclusive results in increasing teacher praise in that Teacher A was under the experimenter's instructional control and Teacher B was not. Also, even though Teacher A initiated teacher praise, this behavior change was not durable. What occurred in the Instructions Condition of this experiment may be what happens when teachers receive instructions from principals and consultants who are attempting to change teacher behavior with infrequent visits to the classroom. Further research is needed in that the question of how effective instructions are in changing teacher behavior remains unanswered.

The Feedback Condition data shown in Figure 1 indicates that feedback preceded by instructions may or may not be effective in increasing teacher praise. In the case of Teacher A, the Feedback Condition produced less teacher praise than did instructions. Teacher B did initiate teacher praise during the Feedback Condition, but it was not durable in that teacher praise quickly dropped back to zero after only four sessions. As in the case of instructions (an antecedent manipulation), feedback (a consequence manipulation) produced inconclusive results that call for further research.

It was noted that the per cent of intervals students attended teachers A and B trended upward through Feedback Conditions. Ideally, it would have been better to allow both of these dependent variables, teacher praise and student attending, to stabilize before instituting the final condition. However, there were two reasons for instituting Feedback plus contingent Praise: (1) teacher praise, the major dependent variable, had stabilized, and (2) feedback preceded by the Instructions Condition without the experimenter's social praise appeared to be aversive to the teachers. Rather than lose cooperation of the teacher or explain the hypothesis of the experiment, which in either case would have terminated the study, the final condition of Feedback Plus Social Praise after eight sessions of Feedback Condition was initiated.

The final condition for Teachers A and B, and the "Package" Condition for Teacher C, combined feedback and social praise for teacher praise of pupil attending behavior. The increased rates of praise by all three teachers suggest that social praise is a necessary ingredient in changing teacher praise behavior. As shown with Teachers A and B, feedback plus social praise, when preceded by instructions and feedback, effects significant changes in teacher praise. In the case of Teacher C, in which the "Package" Condition of instructions, feedback, and social praise was introduced as a unit, significant increases in teacher praise were noted.

Data recorded on teacher attention to non-attending student behavior showed that no significant change occurred throughout the study. (See Table 1.)

The results of the permanent product data (specific instructions followed and problems correct on math sheets) for Teachers A and B showed that little significant change took place during the experiment other than a slightly ascending trend. (See Table 3). This upward trend might be attributed to daily practice. Permanent product data on Teacher C's target students indicated an increase over Baseline during "Package" Condition, but close scrutiny through future research is needed before concrete conclusions can be reached.

It should be noted that intervals of student attending behavior increased with the introduction of teacher praise. Higher means of intervals of teacher praise within conditions generally coincided with higher means of the per cent of intervals students attended teacher. These data tend to support the findings of Broden, Bruce, Mitchell, Carter, and Hall (1970). Data on intervals of student attending completed the chain that began with the experimenter and ended with the student, thus indicating that student's behavior was indirectly (through a mediator) sensitive to the experimenter's behavior.

A notable aspect of the study was that teacher praise maintained and even increased when teachers were placed on an intermittent schedule of social praise. This would seem to indicate that the excuse that principals and supportive staff do not have time for the social reinforcement of teacher behavior is invalid. Operant principles of reinforcement systematically applied would therefore seem to be functional in helping principals and consultants accomplish their primary goal, which should be improving instruction. It would also seem that this could be done with a minimal amount of time and effort.

REFERENCES

- Baer, D. M., Wolf, M. M., and Risley, T. R. Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis*, 1968, 1, 91-97.
- Broden, M., Bruce, C., Mitchell, M. A., Carter, V., and Hall, R. V. Effects of teacher attention on attending behavior of two boys at adjacent desks. *Journal of Applied Behavior Analysis*, 1971, 3, 199-203.
- Cooper, M. L., Thomson, C. L., and Baer, D. M. The experimental modification of teacher attending behavior. *Journal of Applied Behavior Analysis*, 1970, 3, 153-157.
- Hall, R. V., Cristler, C., Cranston, S., and Tucker, B. Teachers and parents as researchers using multiple baseline designs. *Journal of Applied Behavior Analysis*, 1970, 3, 247-255.
- Hall, R. V., Fox, R., Willard, D., Goldsmith, L., Emerson, M., Owen, M., Davis, F., and Porcia, E. The teacher as observer and experimenter in the modification of disputing and talking-out behaviors. *Journal of Applied Behavior Analysis*, 1971, 4, 141-149.
- Hall, R. V., Lund, D., and Jackson, D. Effects of teacher attention on study behavior. *Journal of Applied Behavior Analysis*, 1968, 1, 1-22.
- Hall, R. V., Panyan, M., Rabon, D., and Broden, M. Instructing beginning teachers in reinforcement procedures which improve classroom control. *Journal of Applied Behavior Analysis*, 1968, 1, 315-322.
- O'Leary, K. D., Becker, W. C., Evans, M. B., and Saudargas, R. A. A token reinforcement program in a public school: a replication and systematic analysis. *Journal of Applied Behavior Analysis*, 1969, 2, 3-14.
- Shutte, R. C. and Hopkins, B. L. The effects of teacher attention on following instructions in a kindergarten class. *Journal of Applied Behavior Analysis*, 1970, 3, 117-122.
- Thomas, D. R., Becker, W. C., and Armstrong, M. Production and elimination of disruptive classroom behavior by systematically varying teacher's behavior. *Journal of Applied Behavior Analysis*, 1968, 1, 35-45.
- Ulich, R. *Philosophy of education*. New York: American Book Company, 1961.

Received 21 July 1971.

(Revision requested 1 November 1971.)

(Revision requested 30 May 1972.)

(Final acceptance 7 August 1972.)