

Rules, Praise, And Ignoring: Elements Of Elementary Classroom Control

Charles H. Madsen, Jr., Wesley C. Becker, and Don R. Thomas¹
Florida State University And University of Illinois

An attempt was made to vary systematically the behavior of two elementary school teachers to determine the effects on classroom behavior of Rules, Ignoring Inappropriate Behaviors, and showing Approval for Appropriate Behavior. Behaviors of two children in one class and one child in the other class were recorded by observers, as were samples of the teachers' behavior. Following baseline recordings. Rules, Ignoring, and Approval conditions were introduced one at a time. In one class a reversal of conditions was carried out. The main conclusions were that: (a) Rules alone exerted little effect on classroom behavior, (b) Ignoring Inappropriate Behavior and showing Approval for Appropriate Behavior (in combination) were very effective in achieving better classroom behavior, and (c) showing Approval for Appropriate Behaviors is probably the key to effective classroom management.

- 1 Modern learning theory is slowly but surely increasing its potential for impact upon social problems. As problems in social development and interaction are more closely examined through the methods of experimental analysis, the importance of learning principles in everyday life becomes clearer. The potential contribution of these developments to childrearing and education appears to be especially significant. This report is a part of a series of studies aimed at demonstrating what the teacher can do to achieve a "happier," more effective classroom through the systematic use of learning principles. The study grows out of a body of laboratory and field research demonstrating the importance of social reinforcers (smiles, praise, contact, nearness, attention) in establishing and maintaining effective behaviors in children. Extensive field studies in experimental nursery schools by Wolf, Bijou, Baer, and their students (e.g., Hart, Reynolds, Baer, Brawley, and Harris, 1968; Allen, Hart, Buell, Harris, and Wolf, 1965; Bijou and Baer, 1963) provided a background for the extension of their work by the present authors to special and typical elementary classrooms. In general, we have found to date that teachers with various "personalities" and backgrounds can be trained systematically to control their own behavior in ways which will improve the behavior of the children they are teaching. (Becker, Madsen, Arnold, and Thomas, 1967). We have also found that teachers can "create" problem behaviors in the classroom by controlling the ways in which they respond to their pupils (Thomas, Becker, and Armstrong, 1968; Madsen, Becker, Thomas, Koser, and Plager, 1968). It is hoped that field studies of this sort will contribute to more effective teacher training.
- 2 The present study is a refinement of an earlier study of Becker *et al.* (1967), in which the behavior of two children in each of five classrooms was recorded and related to experimentally controlled changes in teacher behaviors. The teachers were instructed and guided to follow a program which involved making classroom rules explicit, ignoring disruptive behaviors unless someone was getting hurt, and praising appropriate classroom behaviors.

¹We wish to express our appreciation to the teachers involved, Mrs. Barbara L. Weed and Mrs. Margaret Larson, for their cooperation in a study which involved using and applying procedures which at times made their teaching duties very difficult. Gratitude is expressed to the Director of Elementary Education, Unit District #116, Urbana, Illinois, Dr. Lowell M. Johnson, and to the principals of Thomas Paine and Prairie Schools, Richard Sturgeon and Donald Hoiste. This study was supported by Grant HD-00881-05 from the National Institutes of Health. Reprints may be obtained from Wesley C. Becker, Bureau of Educational Research, 284 B Education Bldg., University of Illinois, Urbana, Illinois 61801.

Under this program, most of the severe problem children under study showed remarkable improvements in classroom behavior. However, that study lacked certain controls which the present study sought to correct. First, the teachers in the earlier study were in a seminar [begin page 140] on behavior theory and practice during baseline conditions. Some target children improved during baseline, apparently because some teachers were beginning to apply what they were learning even though they had been requested not to do so. Second, public relations and time considerations did not make it possible to introduce the components of the experimental program one at a time (rules, ignoring, and praise) to better study their individual contributions. Third, a reversal of teacher behavior was not attempted. Such a reversal would more conclusively show the importance of teacher's behavior in producing the obtained changes. Fourth, extensive recordings of teacher behavior under all experimental conditions were not undertaken in the earlier study. The present study attempted to deal with each of these problems.

METHOD

Procedures

- 3 Teachers in a public elementary school volunteered to participate in the study. After consultation with teachers and observation of the children in the classroom, two children with a high frequency of problem behavior were selected for study in each class. Previously developed behavioral categories (Becker *et al.*, 1967) were modified for use with these particular children and baseline recordings were made to determine the frequency of problem behaviors. At the end of the baseline period the teachers entered a workshop on applications of behavioral principles in the classroom which provided them with the rationale and principles behind the procedures being introduced in their classes. Various experimental procedures were then introduced, one at a time, and the effects on the target children's behaviors observed. The experiments were begun in late November and continued to the end of the school year.

Subjects

- 4 *Classroom A.* There were 29 children in Mrs. A's middle-primary (second grade) room who ranged in school progress from mid-first-grade level to early-third-grade level. Cliff and Frank were chosen as the target children.
- 5 Cliff was chosen because he displayed no interest in school. In Mrs. A's words, "he would sit throughout entire work periods fiddling with objects in his desk, talking, doing nothing, or misbehaving by bothering others and walking around the room. Lately he has started hitting others for no apparent reason. When Cliff was required to stay in at recess to do his work, he would complete the work in a short time and it was usually completely accurate. I was unable to motivate him into working on any task during the regular work periods." Cliff is the son of a university professor who was born in Europe and immigrated when Cliff was 5-yr old. Cliff scored 91 on an early (CA 5-3) intelligence test. This score was discounted by the examiner because of language problems. His group IQ scores rose steadily (CA 5-9, IQ 103; CA 6-2, IQ 119; CA 7-1, IQ 123). His achievement scores indicated a low second-grade level at the beginning of the present study. Cliff was seen by the school social worker throughout the entire first grade and throughout this entire study.
- 6 Cliff was observed early in the year and it was noted that he did not respond once to teacher's questions. He played with his fingers, scratched himself repeatedly, played in his desk, paid no attention to the assignment and had to stay in at recess to finish his work. Almost continually he made blowing sounds and talked to himself. On occasions he was out of his seat making noises and talking. He would leave the room without permission. Before the study began the observers made the following notes: "What a silly kid, writing on the bottom of his shoes, writing on his arms, blowing kisses at the girls. He was vying for the attention of the girl behind him, but she ignored him. . . . Poor Cliff! he acts so silly for his age. He tried to talk to the other kids, but none of them would pay attention to him. . . . Cliff seems concerned with the little girl beside him (girl behind him last week). He has a sign on his desk which reads, 'Do you love me?' . . ."

- 7 Frank was described by his teacher as a likable child. He had a record of misbehavior in the classroom and intense fighting on the play ground. He was often out of his seat talking to other children and did not respond to “discipline”. If someone was reprimanded for doing something, Frank would often do the same thing. Test scores indicated an IQ of 106 (Stanford-Binet) and achievement level just under beginning second grade at the start of school (average California Achievement Test [begin page 141] scores 1.6 grades). The school psychologist noted that Frank’s mother was a person “who willingly permitted others to make decisions for her and did not seem able to discipline Frank.” Father was absent from the home during the entire year in the Air Force.
- 8 *Classroom B.* Twenty children were assigned to Mrs. B’s kindergarten room. Two children were observed initially; one moved from the community shortly after baseline was taken, leaving only Stan for the study.
- 9 Stan was described as coming from a truly pathetic home environment. The mother was not married and the family of four children subsisted on state aid. One older brother was enrolled in a special class for the educable retarded. At the beginning of the year, Stan’s behavior was characterized by the teacher as “wild”. She reported that, “Stan would push and hit and grab at objects and at children. He had no respect for authority and apparently didn’t even hear directions. He knew how to swear profusely, and I would have to check his pockets so I would know he wasn’t taking home school equipment. He would wander around the room and it was difficult to get him to engage in constructive work. He would frequently destroy any work he did rather than take it home.”
- 10 The difficult home situation was made manifest during the month of March. Stan had been absent for two weeks and it was reported that his mother was taking her children out of public school and placing them in a local parochial school. Investigation by school personnel indicated that Stan’s mother had moved the children into a relative’s home and had gone to the hospital to have another illegitimate baby. A truancy notice was filed for all four children including Stan. Following legal notice the children were returned to school.

Rating of Child Behavior

- 11 The same rating schedule was used in both classrooms except that Isolate Play was added to the list of Inappropriate Behaviors for the kindergarten. Since the children were expected to be involved in structured group activities during observation periods, going off by oneself to play with the many toys or materials in the room was considered inappropriate by the kindergarten teacher. Inappropriate Behavior was defined as the occurrence of one or more of the behaviors listed under Inappropriate Behavior in Table 1 during any observation interval.
- 12 Observers were trained in the reliable use of the rating schedule before baseline recordings began. Training consisted of practice in use of the rating schedule in the classroom. Two observers would each rate the same child for 20 min and then return to the research office to compare their ratings and discuss their differences with their supervisor. Training was continued until reliability was above 80% on each behavior code. Training lasted approximately two weeks. Reliability was determined periodically throughout the study by dividing the number of agreements by the number of agreements plus disagreements. An agreement was defined as a rating of the same behavior class in the same observation interval. Average reliability over children, behavior classes, and days for the 69 occasions (out of 238) on which it was checked was 81%. Single day reliabilities ranged from 68% to 96%. Reliabilities were checked in each phase of the study.
- 13 Instructions to observers followed those used by Becker *et al.* (1967). In essence, the observers were not to respond to the children, but to fade into the background as much as possible. Teachers, as well as children, quickly learned not to respond to the observers, although early in the study one observer was attacked by a kindergarten child. The observer did not respond to the behavior and it quickly disappeared. Experimental changes were initiated without informing observers in an attempt to control any observer bias. However, the changes were often dramatic enough that observer comments clearly reflected programmed changes in teacher’s behavior.
- 14 The target children were observed for 20 min per day, three days a week. In the middle primary class, observations were taken when the children were engaged in seat work or group instruction. In the kindergarten class, observations were made when structured activities, rather than free play, were expected. Each observer had a clipboard, stopwatch, and rating sheet. The observer would watch for 10 sec and use symbols to record the occurrence of behaviors. In each minute, ratings would be made in five consecutive 10-sec intervals and the final

10 sec would be used for recording comments. Each behavior category could be rated only once in a 10-sec interval. [begin page 142]

Table 1: Behavioral Coding Categories for Children

I. Inappropriate Behaviors

- A. *Gross Motor*. Getting out of seat, standing up, running, hopping, skipping, jumping, walking around, moving chair, etc.
- B. *Object Noise*. Tapping pencil or other objects, clapping, tapping feet, rattling or tearing paper, throwing book on desk, slamming desk. Be conservative, only rate if you can hear the noise when eyes are closed. Do not include accidental dropping of objects.
- C. *Disturbance of Other's Property*. Grabbing objects or work, knocking neighbor's books off desk, destroying another's property, pushing with desk (only rate if someone is there). Throwing objects at another person without hitting them.
- D. *Contact (high and low intensity)*. Hitting, kicking, shoving, pinching, slapping, striking with object, throwing object which hits another person, poking with object, biting, pulling hair, touching, patting, etc. Any physical contact is rated.
- E. *Verbalization*. Carrying on conversations with other children when it is not permitted. Answers teacher without raising hand or without being called on; making comments or calling out remarks when no questions have been asked: calling teacher's name to get her attention; crying, screaming, singing, whistling, laughing, coughing, or blowing loudly. These responses directed to teacher or children
- F. *Turning Around*. Turning head or head and body to look at another person, showing objects to another child, attending to another child. Must be of 4-sec duration, or more than 90 degrees using desk as a reference. Not rated unless seated. If this response overlaps two time intervals and cannot be rated in the first because it is less than 4-sec duration, then rate in the interval in which the end of the response occurs.
- G. *Other Inappropriate Behavior*. Ignores teacher's question or command. Does something different from that directed to do, including minor motor behavior such as playing with pencil or eraser when supposed to be writing, coloring while the record is on, doing spelling during the arithmetic lesson, playing with objects. The child involves himself in a task that is not appropriate. Not rated when other Inappropriate Behaviors are rated. Must be time off task.
- H. *Mouthing Objects*. Bringing thumb, fingers, pencils or any object in contact with the mouth.
- I. *Isolate Play*. Limited to kindergarten free-play per period. Child must be farther than 3 ft from any person, neither initiates or responds to verbalizations with other people, engages in no interaction action of a non-verbal nature with other children for the entire 10-sec period.

II. Appropriate Behavior

Time on task; e.g., answers question, listens, raises hand, works on assignment. Must include while 10-sec interval except for Turning Around responses of less than 4-sec duration.

- 15 The primary dependent variable was percentage of intervals in which an Inappropriate Behavior occurred. Since the varieties of Inappropriate Behavior permitted a more detailed analysis with the schedule used, the presentation of results is focussed on them, even though functionally their converse (Appropriate Behavior) was the main behavior being manipulated.

Ratings of Teacher Behavior

- 16 Ratings of teacher behavior were obtained to clarify relationships between changes in teacher behavior and changes in child behavior. Recordings of teacher behavior were also used by the experimenters to help the teachers learn the contingent use of Approval and Disapproval Behaviors. The teacher rating schedule is presented in Table 2. Teacher behaviors were recorded by subclasses in relation to child behaviors. That is, the record would show whether a teacher response followed Appropriate child classroom behavior or whether it followed one of

the categories of Inappropriate Behavior. Responses to all children were rated. Teacher behavior was scored as the frequency of occurrence of a specified class of behavior during a 20-min interval. Teacher ratings were either recorded during one of the periods when a target child was being rated by another observer, or immediately thereafter when only one observer made both ratings. Teacher behavior was rated on the average of once a week, except during experimental transitions, when more frequent ratings were made. The number of days teacher behavior was rated under each condition is given in Table 3. Most recorded teacher behavior (about 85%) fell in the *Verbal Approval* or *Disapproval* categories. For this reason we have used the term *Praise* interchangeably with *Approval Behaviors* and *Criticism* interchangeably with *Disapproval Behaviors*.

- 17 Reliability of measures of teacher behavior were checked approximately every other rating day (21 of 42 occasions for the two teacher [begin page 143])

Table 2: Coding Definitions for Teacher Behaviors

<p>Appropriate child behavior is defined by the child rating categories. The teacher's rules for classroom behavior must be considered when judging whether the child's behavior is Appropriate or Inappropriate.</p> <p>I. Teacher Approval following Appropriate Child Behavior</p> <p>A. <i>Contact</i>. Positive physical contact such as embracing, kissing, patting, holding arm or hand, sitting on lap.</p> <p>B. <i>Praise</i>. Verbal comments indicating approval, commendation or achievement. Examples: that's good, you are doing right, you are studying well, I like you, thank you, you make me happy.</p> <p>C. <i>Facial attention</i>. Smiling at child.</p>	<p>B. <i>Criticism</i>. Critical comments of high or low intensity, yelling, scolding, raising voice. Examples: that's wrong, don't do that, stop talking, did I call on you, you are wasting your time, don't laugh, you know what you are supposed to do.</p> <p>C. <i>Threats</i>. Consequences mentioned by the teacher to be used at a later time. If _____ then _____ comments.</p> <p>D. <i>Facial attention</i>. Frowning or grimacing at a child.</p>
<p>II. Teacher Approval following Inappropriate Child Behavior Same as codes under I.</p>	<p>IV. Teacher Disapproval following Inappropriate Child Behavior Same codes as under III.</p>
<p>III. Teacher Disapproval following Appropriate Child Behavior.</p> <p>A. Holding the child. Focibly holding the child, putting child out in the hall, grabbing, hitting, spanking, slapping, shaking the child.</p> <p>a. These are procedural definitions of teacher behaviors possibly involving the withdrawal of reinforcers as a consequence of disruptive behaviors which teacher could not ignore.</p>	<p>V. "Timeout" Procedures^a</p> <p>A. The teacher turns out the lights and says nothing.</p> <p>B. The teacher turns her back and waits for silence.</p> <p>C. The teacher stops talking and waits for quiet.</p> <p>D. Keeping in for recess.</p> <p>E. Sending child to office.</p> <p>F. Depriving child in the classroom of some privilege.</p> <p>VI. Academic Recognition Calling on a child for an answer. Giving "feedback" for academic correctness.</p>

- 18 by dividing the agreements as to time interval and behavior codes by the agreements plus disagreements. Average reliability over behavior classes, teachers, and days was 84% with a range from 70% to 96% for individual day measures.

Experimental Conditions

- 19 In the middle-primary class (Class A) the experimental conditions may be summarized as consisting of *Baseline*;

introduction of *Rules*; *Rules* plus *Ignoring* deviant behavior; *Rules* plus *Ignoring* plus *Praise* for appropriate behavior: return to *Baseline*; and finally reinstatement of *Rules*, *Ignoring*, and *Praise*. In the kindergarten class (Class B) the experimental conditions consisted of *Baseline*; introduction of *Rules*; *Ignoring* Inappropriate Behavior (without continuing to emphasize rules); and the combination of *Rules*, *Ignoring*, and *Praise*.

- 20 The various experimental procedures were to be used by the teachers for the classroom as a whole throughout the day, not just for the children whose behavior was being recorded, and not just when observers were present.
- 21 *Baseline*. During the Baseline period the teachers conducted their classes in their typical way. No attempt was made to influence their behavior.
- 22 *Rules*. Many people would argue that just telling children what is expected should have considerable effect on their behavior. We wished to explore this question empirically. Teachers were instructed individually and given written instructions as follows:

“The first phase of your participation in the use of behavioral principles to modify classroom behaviors is to specify explicit rules of classroom conduct. When this is done, there is no doubt as to what is expected of the children in your classroom. However, do not expect a dramatic shift in classroom control, as we all know that knowing the prohibitions does not always keep people from “sin”. This is the first phase in the program and inappropriate behavior should be reduced, but perhaps not eliminated. The rules should be formulated with the class and posted in a conspicuous location (a chart [begin page 144] in front of the room or a special place on the chalkboard where they will not be erased). Go over the rules three or four times asking the class to repeat them back to you when they are initially formulated and use the following guidelines:

“(a) Make the rules short and to the point so they can be easily memorized.

“(b) Five or six rules are adequate. Special instructions for specific occasions are best given when the occasion arises. Children will not remember long lists of rules.

“(c) Where possible phrase the rules in a positive not a negative manner (for example, “Sit quietly while working,” rather than, “Don’t talk to your neighbors”). We want to emphasize positive actions.

“(d) Keep a sheet on your desk and record the number of times you review the rules with the class (strive for at least four to six repetitions per day). Remember that young children do not have the retention span of an adult and frequent reminders are necessary. Let the children recite the rules as you ask them, rather than always enumerating them yourself.

“(e) Remind the class of the rules at times other than when someone has misbehaved.

“(f) Try to change no other aspects of your classroom conduct except for the presentation of the rules at appropriate times.”

- 23 Teacher tally sheets indicated that these instructions were followed quite explicitly. The average number of presentations of rules was 5.2 per day.
- 24 *Ignoring Inappropriate Behavior*. The second experimental phase involved Ignoring Inappropriate Behavior. In Class A, repetition of rules was also continued. Individual conferences to explain written instructions were given both teachers. Both teachers were given the following instructions:

“The first aspect of the study was to make expectations explicit. This you have been doing over the past few weeks. During the next phase of the study you should learn to ignore (do not attend to) behaviors which interfere with learning or teaching, unless of course, a child is being hurt by another, in which case use a punishment which seems appropriate, preferably withdrawal of some positive reinforcement. Learning to ignore is rather difficult. Most of us pay attention to the violations. For example, instead of ignoring we often say such things as the following: “Johnny, you know you are supposed to be working”; “Sue, will you stop bothering your neighbors”; “Henrietta, you have been at that window for a long time;” “Jack, can you keep your hands off Bill”; “Susie, will

you please sit down”; “Alex, stop running around and do your work”; “Jane, will you please stop rocking on your chair.”

“Behaviors which are to be ignored include motor behaviors such as getting out of seat, standing up, running, walking around the room, moving chairs, or sitting in a contorted manner. Any verbal comment or noise not connected with the assignments should also be ignored, such as: carrying on conversations with other children when it is not permitted, answering questions without raising hands or being called on, making remarks when no questions have been asked, calling your name to get attention, and extraneous noises such as crying, whistling, laughing loudly, blowing noise, or coughing. An additional important group of behaviors to be ignored are those which the student engages in when he is supposed to be doing other things, *e.g.*, when the child ignores your instructions you are to ignore him. Any noises made with objects, playing with pencils or other materials should be ignored, as well as, taking things from or disturbing another student by turning around and touching or grabbing him.

“The reason for this phase of the experiment is to test the possibility that attention to Inappropriate Behavior may serve to strengthen the very behavior that the attention is intended to diminish. Inappropriate Behavior may be strengthened by paying attention to it even though you may think that you are punishing the behavior.”

- 25 *Praise for Appropriate Behavior.* The third phase of the experiment included individual contacts with teachers to encourage and train Praising of Appropriate Behavior. The Praise instructions to the teachers were as follows:

[begin page 145] “The first phase included specifying explicit rules, writing them on the board and reviewing them 4-6 times per day. The second phase was designed to reduce the amount of attention paid to behaviors which were unwanted by ignoring them. This third phase is primarily directed toward *increasing* Appropriate Behaviors through praise and other forms of approval. Teachers are inclined to take good behavior for granted and pay attention only when a child acts up or misbehaves. We are now asking you to try something different. This procedure is characterized as “catching the child being good” and making a comment designed to reward the child for good behavior. Give praise, attention, or smile when the child is doing what is expected during the particular class period in question. Inappropriate Behavior would not be a problem if all children were engaging in a great deal of study and school behavior, therefore, it is necessary to apply what you have learned in the workshop. Shape by successive approximations the behavior desired by using praise and attention. Start “small” by giving praise and attention at the first signs of Appropriate Behavior and work toward greater goals. Pay close attention to those children who normally engage in a great deal of misbehavior. Watch carefully and when the child begins to behave appropriately, make a comment such as, “You’re going a fine job, (name).” It is very important during the first few days to catch as many good behaviors as possible. Even though a child has just thrown an eraser at the teacher (one minute ago) and is now studying, you should praise the study behavior. (It might also decrease the rate of eraser throwing.) We are assuming that your commendation and praise are important to the child. This is generally the case, but sometimes it takes a while for praise to become effective. Persistence in catching children being good and delivering praise and attention should eventually pay off in a better behaved classroom.

“Some examples of praise comments are as follows:

I like the way you’re doing your work quietly (name).

That’s the way I like to see you work _____.

That’s a very good job _____.

You’re doing fine _____.

You got two right _____, that’s very good (if he generally gets no answers right).

“In general, give praise for achievement, prosocial behavior, and following the group rules. Specifically, you can praise for concentrating on individual work, raising hand when appropriate, responding to questions, paying attention to directions and following through, sitting in desk and studying, sitting quietly if noise has been a problem. Try to use variety and expression in your com-

ments. Stay away from sarcasm. Attempt to become spontaneous in your praise and smile when delivering praise. At first you will probably get the feeling that you are praising a great deal and it sounds a little phony to your ears. This is a typical reaction and it becomes more natural with the passage of time. Spread your praise and attention around. If comments sometimes might interfere with the ongoing class activities then use facial attention and smiles. Walk around the room during study time and pat or place your hand on the back of a child who is doing a good job. Praise quietly spoken to the children has been found effective in combination with some physical sign of approval.

“General Rule: Give *praise* and *attention* to behaviors which facilitate learning. Tell the child what he is being praised for. Try to reinforce behaviors incompatible with those you wish to decrease.”

- 26 The teachers were also instructed to continue to ignore deviant behavior and to repeat the rules several times a day.
- 27 Additional training given teachers consisted of: (a) discussion of problems with suggested solutions during weekly seminars on behavior analysis, and (b) specific suggestions from the experimenter on possible alternative responses in specific situations based on the experimenter's observations of the teachers during experimental transitions, or based on observer data and notes at other times when the data showed that the teachers were not on program.
- 28 [begin page 146] Additional cues were provided to implement the program. Cards were placed on the teachers' desks containing the instructions for the experimental phase in which they were engaged.
- 29 *Reversal*. In Class A the final experimental conditions involved an attempt to return to Baseline, followed by a reinstatement of the *Rules*, *Praise*, and *Ignore* condition. On the basis of the earlier observations of Teacher A, we were able to specify to her how frequently she made disapproving and approving comments. The success of this procedure can be judged from the data.

RESULTS

- 30 Percentage of observation intervals in which Inappropriate Behaviors occurred as a function of conditions is graphed in Fig. 1 and 2. Major changes in Inappropriate Behaviors occurred only when Praise or Approval for Appropriate Behaviors was emphasized in the experimental procedures. A *t* test, comparing average Inappropriate Behavior in conditions where Praise was emphasized with those where Praise was not emphasized, was significant at the 0.05 level ($df = 2$).
- 31 Before examining the results more closely, it is necessary to inspect the data on teacher behavior. Table 3 gives the frequency of classes of teacher behaviors averaged within experimental conditions. Since day-to-day variability of teacher behavior was low for the measures used, these averages fairly reflect what went on.
- 32 Introduction of Rules into the classroom had no appreciable effect on Inappropriate Behavior.
- 33 Ignoring Inappropriate Behaviors produced inconsistent results. In Class A the children clearly became worse under this condition; in Class B little change was apparent. Both teachers had a difficult time adhering to this condition, and Teacher A found this phase of the experiment very unpleasant. Table 3 shows that Teacher A was only able to reduce critical comments from an average of one per 1 min to an average of three in 4 min. Teacher B cut her critical comments in half. In view of these difficulties, the present results cannot be taken as a clear test of the effects of responding with Disapproval to inappropriate Behaviors.
- 34 The failure to eliminate Disapproval Reactions to inappropriate Behaviors in Phase Three of the experiment, adds some ambiguities to the interpretation of the Phase Four data for Teacher A. The Rules, Ignore, and Praise condition for Teacher A involved both a reduction in critical comments (Ignoring) as well as a marked increase in Praise. As demonstrated previously (Becker *et al.*, 1967), this

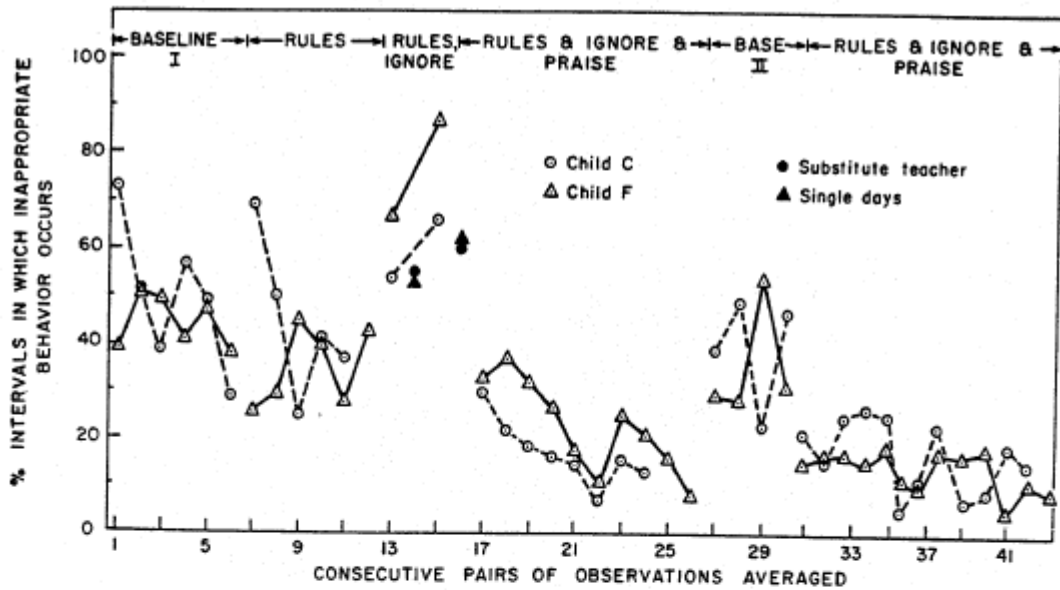


Fig. 1. Inappropriate behavior of two problem children in Classroom A as a function of experimental conditions.

[begin page 147]

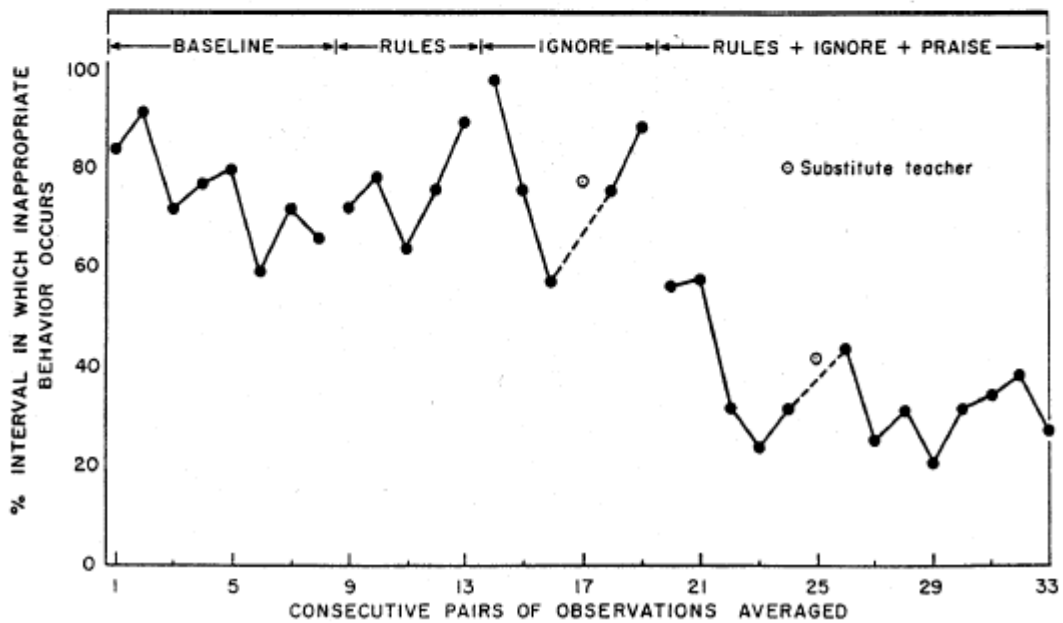


Fig. 2. Inappropriate behavior of one problem child in Classroom B as a function of experimental conditions.

Table 3: Teacher Behavior -- Averages for Experimental Conditions (Frequency per 20-min Observation).

Teacher A Behavior Classes	Experimental Conditions					
	Baseline I	Rules	Rules +	Rules +	Baseline II	Rules +
			Ignore	Ignore +		Ignore +
Approval to Appropriate	1.2	2	0	18.2	2.5	12.5
Approval to Inappropriate	8.7	0.8	20	1.2	4	5.1
Disapproval to Inappropriate	18.5	20.5	15.7	4.1	9.8	3.5
Disapproval to Appropriate	0.9	0.7	1	0.3	0.9	0
Timeout	3.3	1.4	1.7	0.4	0	0.1
Academic Recognition	26.5	23.6	46.3	52.4	45.4	45.6
Days Observed	15	8	3	11	4	9

Teacher B Behavior Classes	Experimental Conditions					
	Baseline I	Rules	Rules +	Rules +	Baseline II	Rules +
			Ignore	Ignore +		Ignore +
Approval to Appropriate	19.2	14.1	19.3	35.2		
Approval to Inappropriate	1.9	0.9	0.3	0		
Disapproval to Inappropriate	16.9	22.1	10.6	10.8		
Disapproval to Appropriate	0	0	0	0		
Timeout	1.5	1.5	0.3	0.4		
Academic Recognition	14.5	5.1	6.3	35.6		
Days Observed	8	6	6	10		

[begin page 148] combination of procedures is very effective in reducing inappropriate classroom behaviors, but we still lack a clear isolation of effects. The data for Teacher B are not confounded with a simultaneous shift in frequency of Disapproval and Approval Reactions, but they are made less interpretable by a marked shift in Academic Recognition (defined in Table 2) which occurred when the shift in Praise was made. Since Academic Recognition does not show any systematic relations to level of Appropriate Behaviors elsewhere in the study, we are not inclined to interpret this change as showing a causal effect. A best guess is that the effective use of Praise gave the teacher more time to focus on academic skills.

- 35 The reversal operation for Teacher A quite clearly shows that the combination of Praising and Ignoring exerts a strong control over Appropriate Behaviors.
- 36 As with Academic Recognition, no attempt was made to control how frequently the teacher used procedures labelled "Timeout" (defined in Table 2). The frequency data reported in Table 4 indicates that during Baseline, Teacher A, especially, used "Timeout" procedures to try to establish control (usually turning off the lights until the children were quiet). The changes in the frequency of use of "Timeout" procedures are not systematically related to the behavior changes graphed in Fig. 1 and 2.
- 37 In summary, the main results indicate: (a) that Rules alone had little effect in improving classroom behavior, (b) the functional status of Ignoring Inappropriate Behavior needs further clarification, (c) the combination of Ignoring and Praising was very effective in achieving better classroom behavior, and (d) Praise for Appropriate Behaviors was probably the key teacher behavior in achieving effective classroom management.
- 38 The effects of the experimental procedures on individual classes of behavior for the two children in Class A are presented in Table 4. The data in Table 4 illustrate that with a few exceptions the effects on individual classes of behavior are similar to those for Inappropriate Behavior as a whole.

DISCUSSION

Technical Considerations

- 39 The problems of gaining good data and maintaining adequate experimental control in an ongoing classroom in a public school have not all been recognized as yet, much less solved. The greatest difficulty encountered was that of maintaining stable control over some important variables while others were being changed. When these variables involve aspects of teacher behavior, the problem becomes one of helping the teacher maintain discriminative control over her own behavior. Daily feedback [begin page 149] from the experimenter, based on the

Table 4: Percentage of intervals in which behaviors occur: averages for two children in classroom A by experimental conditions.

Behavior Classes ¹	Experimental Conditions					
	Baseline I	Rules	Rules + Ignore	Rules + Ignore + Praise I	Baseline II	Rules + Ignore + Praise II
Inappropriate Behavior ²	46.8	39.8	68.5	20.5	37.6	15.1
Gross Motor	13.9	11.3	32.7	5.9	15.5	4.1
Object Noise	3.5	1.4	1.3	0.5	1.9	0.8
Disturbing Other's Property	3.3	1.8	1.9	0.7	0.7	0.3
Turning Around	21.6	9.9	11.4	9.1	12.8	7.6
Verbalizations	12	16.8	21.8	6.5	8	3.5
Other Inappropriate Behavior	10.9	7.8	16.5	3.9	7.8	2.6
Mouthing Objects	5.5	2.9	3.5	0.7	0.2	0.1

1 *Contact* occurred less than 1% of the time and is not tabulated here.

2 The sum of the separate problem behaviors will exceed that for Inappropriate Behavior, since the latter measure does not reflect the possibility that more than one class of problem behavior may occur in an interval.

- observer ratings. can help in this task (*i.e.*, show the teacher the up-to-date graph of her behavior). Also, providing the teacher with a small counter to help monitor her own behavior can be helpful (Thomas, *et al.*, 1968). Most difficult to control in the present study was teacher's Disapproving Reactions to Inappropriate Behaviors during the Ignore Phase of the experiment. Teacher A became very "upset" as her classroom became worse. One solution to this problem might be a pre-study in which the teacher is trained in effective management techniques, and then taken through a series of short periods where both Approval and Disapproval are eliminated and one or the other reinstated. The teacher would then have confidence that she can effectively handle her class and be better able to tolerate short periods of chaos (if such periods did occur). She would also have had sufficient training in monitoring her own behavior to permit more effective control.
- 40 No attempt was made to program the frequency of various classes of Academic Recognition behaviors. Since such behavior may be important in interpreting results, and was found to vary with some experimental conditions, future work should strive to hold this behavior constant also.
- 41 The present study emphasized the importance of contingencies between student and teacher behaviors, but did not measure them directly. While producing similar effects on two children in the same classroom and one child in another classroom, and showing correlated changes in teacher behaviors (including a reversal operation), more powerful data are potentially obtainable with a different technology. Video-tape recordings could enable the use of present coding techniques to obtain contingency data on all classroom members over longer observation periods. Just as the children adapted to the presence of observers, a class could be adapted to the presence of a TV camera man. Costs could be trimmed by saving only some sample tapes and reusing others after reliability ratings are obtained. The current observation procedures (short of having an observer for each child) cannot readily be extended to include simultaneous coding of teacher and child behavior without over-taxing the observers. The present findings, and related studies in this series, are sufficiently promising to warrant an investment in more powerful recording equipment.

Teacher Reactions

- 42 *Teacher A.* Initially, Mrs. A generally maintained control through scolding and loud critical comments. There were frequent periods of chaos, which she handled by various threats.
- 43 When praise was finally added to the program, Mrs. A had these reactions: "I was amazed at the difference the procedure made in the atmosphere of the classroom and even my own personal feelings. I realized that in praising the well-behaved children and ignoring the bad, I was finding myself looking for the good in the children. It was indeed rewarding to see the good rather than always criticizing. . . . I became convinced that a positive approach to discipline was the answer."
- 44 *Teacher B.* During Baseline Mrs. B was dispensing a great deal of praise and approval to her classroom, but it was not always contingent on Appropriate Behavior. Her timing was wrong and inconsistencies were apparent. For example, on one occasion two children were fighting with scissors. The instigator was placed under a table away from the rest of the class and left there for 3 min. After 3 min Mrs. B took the child in her arms and brought her back to the group even though she was still emitting occasional loud screams. Mrs. B would also ignore behavior for a period of time and then would revert to responding to Inappropriate Behavior with a negative comment; she occasionally gave Approval for Inappropriate Behavior. The training given in seminar and discussions with the experimenter led to an effective use of contingencies. Teacher B was also able to use this training to provide instructions and training for her aide to eliminate problems which arose in the final phase of study when the aide was continuing to respond to Disruptive Behaviors.

Changes in the Children

- 45 Cliff showed little change until Mrs. A started praising Appropriate Behavior, except to get worse during the Ignore phase. He was often doing no academic work, talking to peers, and just fiddling away his time. It took considerable effort by Mrs. A to catch Cliff showing praiseworthy behavior. As the use of praise continued, Cliff worked harder on his assigned tasks, learned to ignore other children [begin page 150] who were misbehaving, and would raise his hand to get teacher's attention. He participated more in class discussions. He was moved up to the fastest arithmetic group.
- 46 Frank showed little change in his "hyperactive" and "inattentive" behaviors until praise was introduced. Frank responded rapidly to praise. After just two days in the "praise" phase, Frank was observed to clean his desk quietly and quickly after completing a handwriting assignment. He was able to finish a task and study on his own until the teacher initiated a new activity. He began to ask for extra assignments and volunteered to do things to help his teacher. He had learned to sit quietly (when appropriate), to listen, and to raise his hand to participate in class discussion, the latter occurring quite frequently.
- 47 Stan slowly improved after contingent praise was instituted, but some of the gains made by Mrs. B were in part undone by the teacher aide. The aide was described as playing policeman and it took special efforts by the teacher to get her to follow the program. Mrs. B summarized the changes in Stan as follows: "Stan has changed from a sullen, morose, muttering, angry individual into a boy whose smile seems to cover his whole face." He became very responsive to teacher praise and learned to follow classroom rules, to pay attention to teacher-directed activities for long periods of time, and to interact with his peers in a more friendly way.

Implications

- 48 This replication and refinement of an earlier study by Becker, *et al.* (1967) adds further confidence to the assertion that teachers can be taught systematic procedures and can use them to gain more effective behaviors from their students. Unless teachers are effective in getting children "ready to learn", their technical teaching skills are likely to be wasted. Knowledge of differential social reinforcement procedures, as well as other behavioral principles, can greatly enhance teachers' enjoyment of the profession and their contribution to effective development of the students.
- 49 The reader should note that while we formally recorded the behavior of a few target children, teacher and observer comments indicated dramatic changes in the whole "atmosphere" of the classroom and in the teachers'

enjoyment of their classes.

REFERENCES

- Allen, K. E., Hart, B. M., Buell, J. S., Harris, F. R., and Wolf, M. M. Effects of social reinforcement on isolate behavior of a nursery school child. In L. P. Ullmann and L. Krasner (Eds.), *Case studies in behavior modification*. New York: Holt, Rinehart, & Winston, 1965. pp. 307-312.
- Becker, W. C. Madsen, C. H., Jr., Arnold, Carole R., and Thomas, D. R. The contingent use of teacher attention and praise in reducing classroom behavior problems. *Journal of Special Education*, 1967, 1, 287-307.
- Bijou, S. W. and Baer, D. M. Some methodological contributions from a functional analysis of child development. In L. P. Lipsitt and C. S. Spiker (Eds.), *Advances in child development and behavior*. New York: Academic Press, 1963, pp. 197-231.
- Hart, Betty M., Reynolds, Nancy J., Baer, Donald M., Brawler, Eleanor R., and Harris, Florence R. Effect of contingent and non-contingent social reinforcement on the cooperative play of a preschool child. *Journal of Applied Behavior Analysis*, 1968, 1, 73-76.
- Thomas, D. R., Becker, W. C., and Armstrong, Marianne. Production and elimination of disruptive classroom behavior by systematically varying teacher's behavior. *Journal of Applied Behavior Analysis*, 1968, 1, 35-45.
- Madsen, C. H., Jr., Becker, W. C., Thomas, D. R., Koser, Linda, and 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 (in press).

Received 25 February 1968.