8-1976

A three step strategy for training a beginning teacher to use positive social reinforcement in the classroom

Robert D. Morris

A THREE-STEP STRATEGY FOR TRAINING A BEGINNING TEACHER TO USE POSITIVE SOCIAL REINFORCEMENT IN THE CLASSROOM.

BY

ROBERT DARRELL MORRIS

A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Arts in Psychology in the
Graduate School of the University of Richmond

August, 1976

ACCEPTANCE

This thesis has been accepted in partial fulfillment of the requirements for the Degree of Master of Arts in Psychology in the Graduate School of the University of Richmond.

7-29-76
Date

Chairman

Member

Member

ACKNOWLEDGEMENTS

The author wishes to thank Dr. Edward H. Tiller for his advice, criticism, and accessibility during the period of this study. Acknowledgement is also made to Mrs. Jean N. Dickinson and Dr. Kenneth Blick for their assistance. A special thank you is extended to Dr. James S. Payne for supplying inspiration and moral support when it was most needed. The author is also grateful to Ms. Diane Cook for her help in data collection and to Ms. Verda Ingle for typing and re-typing the manuscript. Finally, the author expresses sincere appreciation to the first-year teacher in whose class the study was conducted, and wishes her the best of luck as she continues her career in special education.

ABSTRACT

The purpose of the study was to measure the effectiveness of a three-step strategy designed to modify a classroom teacher's consequating behavior. In Step 1, a group contingency game was introduced into the classroom to reduce talk-outs and out-of-seats. In Step 2, the game was supplemented by observer instructions and feedback to the teacher concerning her consequating behavior. The purpose of the feedback was to increase teacher approval for appropriate behavior and to decrease teacher disapproval for inappropriate behavior. In Step 3, the group contingency game was removed but the teacher continued to receive feedback on her consequating behavior. Therefore, in this condition, classroom discipline became dependent on the teacher's skill in administering social reinforcement. Results showed that the greatest increase in teacher approval and the greatest decrease in teacher disapproval occurred in the game plus feedback conditions. Student talk-outs and out-of-seats were reduced considerably in each condition in which the group contingency game was played. Follow-up showed that the positive effects of training were not maintained in the teacher's post-intervention behavior. These results indicate that the strategy may be an effective way of helping a troubled teacher to gain control of his/her classroom through the use of positive social reinforcement. However, methodological changes are needed to increase the long-term effectiveness of the training procedure.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Chapter 1

INTRODUCTION

Discipline in the classroom fosters an environment conducive to communication and learning, and also seems to be an important survival skill for teachers. Morse and Wingo (1969) have stated that behavior management is the biggest problem facing beginning teachers, while Masden and Masden (1974) pointed out that a large majority of teachers who leave the profession do so because of an inability to control their students.

There is increasing agreement among educators and psychologists concerning the types of discipline techniques which are most effective both in maintaining order and in helping students to achieve instructional objectives. Meacham and Wiesen (1969) have advocated that teachers use positive reinforcement and extinction to eliminate undesirable student behavior. These authors discouraged the use of punishment and threat as a means of control. Clarizio (1971) noted that competent teachers use more rewards than punishment in managing student behavior, the approximate ratio being four positive reinforcers to every one punishing experience. Stainback, Payne, Stainback, and Payne (1973) also encouraged the consistent use of positive reinforcement in the classroom so that students will develop positive attitudes toward the teacher and the learn-

ing experience. Punishment and threat (aversive control), traditional methods of our society for managing the behavior of adults and children, have fallen into disfavor because of their potentially undesirable side effects. That is, the child who is frequently punished may begin to avoid and/or develop negative attitudes toward the punisher (teacher) and the punishing situation (reading class). While acknowledging the ability of punishment to suppress inappropriate behavior, Bandura (1969) stressed that the technique should be employed sparingly and judiciously.

The effectiveness of teacher-supplied social reinforcement in reducing disruptive behavior has been well documented in the behavior modification literature. In a special classroom situation, Zimmerman and Zimmerman (1962) demonstrated that teacher attention to appropriate behavior paired with ignoring unproductive behavior successfully reduced the temper tantrums of two eleven-year-old boys. Thomas, Becker, and Armstrong (1968) found that disruptive behavior in a regular classroom could be first increased and then eliminated by systematically varying the teacher's behavior. They reported that disruptive behavior increased from a baseline rate of 9% to 26% when the teacher contingently used disapproval of disruptive behavior and did not praise appropriate behavior. When the teacher reversed her consequating behavior, approving appropriate student responses and ignoring disruptive ones, the level of classroom disruption decreased significantly. Masden, Becker, and Thomas (1968) demonstrated that a combination of rules, praise, and ignoring was effective in re-

ducing the behavior problems of target students, and several researchers (Hall, Fox, Willard, Goldsmith, Emerson, Owen, Davis, & Porcia, 1971; Ringer, 1973) have reported success in reducing disruptive behavior when the teacher paired praise with a token reinforcement system.

Teacher-supplied social reinforcement has also been used to increase appropriate study behavior and to improve academic performance. Hall, Lund, and Jackson (1968) found that contingent teacher attention increased the study behavior of six children in a regular classroom. In working with under-achieving elementary students, Chadwick and Day (1971) paired token and social reinforcement to increase time-on-task behavior, number of completed problems per minute, and number of problems correct. These gains were maintained when social reinforcement alone was continued. Research also has shown that teacher approval (verbal or non-verbal) of one student's behavior can have a reinforcing effect on the behavior of other students in the class (Broden, Bruce, Mitchell, Carter, & Hall, 1970). These authors found that a teacher's praise not only increased the attending behavior of a disruptive seven-year-old boy, but also increased the attending behavior of a nearby classmate who was not directly reinforced. This generalizing effect of teacher praise and approval has important implications for the classroom teacher who desires a positive learning environment.

Most teachers seem convinced that the classroom environment should be a relatively positive place. In interviewing over 5,600

teachers, administrators, and counselors, Masden and Masden (1974) found that over 99% of the respondents agreed that teachers should foster a positive learning environment. Over 97% of the educators interviewed also agreed that a strong indicator of a positive environment would be one where the teacher makes more approving than disapproving comments toward student behavior. However, when the researchers compared the teachers' self-reported, positive intentions with actual classroom observations of student-teacher interactions, a large discrepancy occurred. The observations revealed that less than 8% of more than 6,800 teachers actually gave more approval comments for appropriate behavior than disapproval comments for inappropriate behavior. Masden and Masden's study suggests that while most teachers verbally acknowledge the importance of a positive, approving environment, in practice they control their students by using disapproval, a form of punishment.

Beginning teachers seem to be especially vulnerable to this educational paradox in which adults with positive intentions use negative techniques to control children's behavior. When confronted by continued disruptive behavior which can be neither ignored nor eliminated by reasoning with the students, the inexperienced teacher may eventually resort to the use of aversive control. Threats and punishment are easy for the teacher to administer and they can be deceptively effective. For example, the verbal threat of having to write 100 sentences or of being sent to the principal's office takes only five seconds to deliver, allows the teacher to express her anger,

and may temporarily suppress undesirable student behavior. However, threats also can produce unwanted emotional responses in children (Meacham & Wiesen, 1969) and in some cases eventually add to the overall amount of undesirable behavior in a classroom (Thomas, Becker, & Armstrong, 1968). More importantly, continued reliance upon threats and punishment creates an atmosphere of mutual distrust and disrespect which makes coming to school an unpleasant task for both students and teacher.

> It appears true but unfortunate that several important changes occur with many teachers in that short period of time while passing from a naive idealist to "practitionaire." The desire to be a good teacher often gives way first to disillusionment, then to cynicism, and perhaps on to despair. The culmination is sometimes complete resignation and apathy. (Masden & Masden, 1974)

There are several ways to help beginning teachers avoid these negative, constrictive patterns of student-teacher interaction. Teacher-training institutions can make a convincing theoretical case for the use of positive consequences, and then demonstrate to future teachers the applicability of these techniques in real or simulated classroom situations. A second alternative might be one in which the public schools would provide pre-service training to a beginning teacher on the importance and the use of positive classroom discipline. Such pre-service workshops could be followed up by having a principal or supervisor observe the first-year teacher in the classroom and provide the teacher with feedback on her performance. Given the absence of this undergraduate or pre-service training in the uses of positive social reinforcement, many teachers encounter serious discipline prob-

lems in their first years of teaching.

A third approach to training beginning teachers in the use of effective behavior management skills is to provide inservice consultation on specific problems of classroom control. Although extensive research has demonstrated the effectiveness of teacher-supplied social reinforcement in modifying behavior problems, few studies have focused precisely on the problem of training teachers to be effective behavior modifiers. Brown, Montgomery, and Barclay (1969) were justified in stating that the literature has focused mainly on changes in student behavior rather than on the process by which teachers have learned to change their management methods. A few researchers have examined various consultative strategies in providing behavior modification training to inservice teachers. Hall, Panyan, Rabon, and Broden (1968) reported successful results in training three first-year teachers to use behavior modification techniques. In each teacher's classroom, a consultant 1) assessed the problem behaviors; 2) took baseline data on the target behaviors; 3) provided the teacher with a brief explanation of reinforcement principles and procedures (contingent approval, ignoring, withdrawal of privileges); and 4) provided the teacher with daily feedback on her consequating behavior during a training phase. Results showed that the teachers increased their approval comments for appropriate behavior and that increases in student study behavior were maintained up to 20 weeks after termination of the experiment.

Masden, Becker, and Thomas (1968) introduced the concept of behavior categories in training two teachers to use rules, praise, and

ignoring with their students. The authors trained the teachers to respond contingently (approve, disapprove) to categories of student behavior (appropriate, inappropriate). The well-defined behavioral categories facilitated the consultant's explanation of reinforcement principles and also enabled the teacher to receive precise yet understandable feedback on her performance during the experimental phases. Cooper, Thompson, and Baer (1970) developed a method of observing and modifying teacher attention to appropriate child responses (e.g., hand-raising, in-seat) in pre-school classrooms. In this study no attempt was made to provide specific training in reinforcement principles. The experimenters attempted to increase teacher attention to appropriate child responses by providing the teacher with factual feedback relating to her attending behavior. The feedback consisted of four types of information: 1) behavior definition - a statement made to the teacher before each observation session describing what was meant by "appropriate child response;" 2) local success frequency - the number of times the teacher attended to appropriate child responses during a 10-minute interval. This was reported verbally every 10 minutes of the session; 3) daily rate - the percentage of intervals in each session in which the teacher attended to appropriate child responses. This was reported at the end of each session; 4) failure frequency - the number of times the teacher failed to attend to appropriate child responses during the observation period. This was also reported at the end of each session. Results showed that upon receiving the local and daily feedback the teacher increased

her appropriate attending from 10% to 30% of her total teaching time.

In addition to the research cited above, other studies have reported success in training masters-level students (Breyer, Calchera, & Cann, 1971), consulting teachers (McKenzie, Egner, Knight, Perelman, Schneider, & Garvin, 1970), and school psychologists (Brown, Montgomery, & Barclay, 1969) to effectively assist teachers in the management of classroom behavior. However, with the exception of the study by Breyer et al. (1971), no mention was made of a teacher's hesitance to change her present behavior or of other practical problems which might occur in training a teacher to use behavior modification techniques. Regardless of the quality of consultation, it seems reasonable to assume that a teacher who is experiencing severe behavior management problems while relying on aversive control techniques may find it difficult to immediately change her consequating behavior (i.e., begin to approve appropriate student responses and to ignore inappropriate ones). Tharp and Wetzel (1969) have pointed out that when children are misbehaving so badly in the classroom as to make the teacher angry with them, it often becomes aversive to the teacher to begin praising them. The prevailing pattern of disruptive behavior reinforced by negative teacher attention may be difficult for both students and teacher to change without some type of "intermediate stage" in which students and teacher can begin to perceive each other in a new manner.

The present study addressed this problem. Based on a consultant model, it examined an inservice method of providing positive

discipline skills to a beginning teacher who was already experiencing behavior management problems in her classroom. The study investigated the effectiveness of a three-step strategy designed to help a teacher to: a) increase her percentage of approving appropriate behavior; b) decrease her percentage of disapproving inappropriate behavior, and c) decrease her percentage of making mistakes of consequation (mistakes of consequation included approval for inappropriate behavior and disapproval for appropriate behavior).

In the first step, a group contingency technique was introduced in order to reduce the occurrences of out-of-seat and talking-out behavior in the classroom. The students as a group earned a reinforcer if the collective frequency of their inappropriate behavior remained below a certain level. Hypothesis 1. A group contingency game will reduce the rates of talk-outs and out-of-seats in an elementary classroom. A 25% decrease from the baseline rates of talk-outs and out-of-seats represented the experimental criterion (see explanatory diagram on p. 10). Barrish, Saunders, and Wolf (1969) found that a group contingency game, in which group consequences depended on appropriate behavior of individual team members, significantly reduced disruptive behavior in a fourth-grade class: out-of-seat behavior declined from 82% to 9%; talking-out behavior declined from 96% to 19%. Medland and Stachnik (1972) replicated the Barrish et al. study, reporting similar positive results, and Billingsley and Smelser (1974) demonstrated that the group contingency game was an effective management technique in a special class for emotionally-disturbed middle school students.

	Step 1		Step 2			Step 3	
	B_1	Game	Game + Feedback$_1$	B_2	Game + F'back$_2$	F'back Only	Follow up
Talk-Outs (f)		Hypothesis 1 criterion = 25% decrease				Hyp. 3 crit.	Hyp. 5 crit.
Out-of-Seats (f)		criterion = 25% decrease				crit.	crit.
Teacher Approv. (%)			Hypothesis 2 criterion = 20% increase			Hyp. 4 crit.	Hyp. 6 crit.
Teacher Disapp. (%)			criterion = 20% decrease			crit.	crit.
Teacher Mistakes (%)			criterion = 12% decrease			crit.	crit.

In the second step of the training strategy, the group contingency game was supplemented by an observer's feedback to the teacher concerning the teacher's rate of dispensing approvals and disapprovals and her rate of making mistakes of consequation. This step introduced the hypothesis which is central to this research. Hypothesis 2. A group contingency game plus observer feedback will enable a teacher to increase her percentage of approving appropriate behavior and decrease her percentage of disapproving inappropriate behavior and of making mistakes of conse-

quation. In this hypothesis, the percentage measure refers to occurrences of a given teacher behavior (e.g., approval) expressed as a ratio of the total number of teacher consequences given (approval, disapproval, and mistakes). The experimental criteria for the three teacher behaviors were: a) a 20% increase from the baseline approval percentage; b) a 20% decrease from the baseline disapproval percentage; and c) a 12% decrease from the baseline mistakes of consequation percentage. (The 12% criterion for mistakes represented an attempt to reduce the baseline mistake percentage by one-half).

In the third and final step, the group contingency game was removed, but the teacher continued to receive feedback on her consequating behavior. Thus, in the absence of the group contingency for controlling inappropriate student behavior, classroom discipline became dependent on the teacher's skill in dispensing social reinforcement. Hypothesis 3. Given the absence of the group contingency game but with continued observer feedback, the rates of talk-outs and out-of-seats exhibited by the students will not exceed the criterion rates for these behaviors mentioned above (Hypothesis 1). Hypothesis 4. Given the absence of a group contingency game to control talk-outs and out-of seats but with continued observer feedback, the teacher will be able to approve appropriate behavior, disapprove inappropriate behavior, and make consequation mistakes at the criterion percentages mentioned above (Hypothesis 2).

A follow-up condition took place three weeks after training had been completed. Behavior was recorded under conditions similar to those of the baseline periods. Follow-up data provided the answers to two questions:

Hypothesis 5. Following training, the rates of talk-outs and out-of-seats exhibited by the students will not exceed the experimental criterion rates for these behaviors. Hypothesis 6. Following training, the teacher will be able to approve, disapprove, and make consequating mistakes at the experimental criterion percentages.

Chapter 2

METHOD

Subject Selection

Teacher. The teacher was a first-year teacher who was experiencing difficulty in managing classroom behavior. The teacher agreed to participate in the study voluntarily. She also contracted with the experimenter to spend a minimum of one hour of consultation time per week outside of class for the duration of the study. An experimental criterion for selecting the teacher was that she had to be giving more disapproval to inappropriate behavior (including mistakes of consequation) than approval to appropriate behavior prior to intervention.

Students. The students were all the members of a primary EMR (educable mentally retarded) class in Culpeper County, Virginia. Their ages ranged from seven to ten years. In addition, a subgroup of three target students was selected from this class by the teacher. The target children were evidencing maladaptive social behavior, poor academic achievement, and/or a general disinterest in what was taking place in the classroom.

Response Definitions: Teacher Behaviors

Two aspects of teacher behavior, approval responses and disapproval responses, were recorded during all conditions.

Approval responses.

1) words spoken - verbal comments which praised a student's behavior. Examples: "that's good; well done; I appreciate your attention; you people have been great today."

2) physical expressions - facial or bodily expressions which rewarded a student's behavior. Examples: a big smile, nodding, winking, clapping hands, signaling A-OK, jumping up and down.

3) physical contact - touching the student. Examples: patting back, shaking hands, touching head.

Disapproval responses.

1) words spoken - nagging, sarcasm, criticism, threats, screaming in anger. Examples: "you don't understand because you don't listen; it can't be that difficult; sit down and be quiet; this is the last time I'm telling you to shut up."

2) physical expressions - facial or bodily expressions which showed disapproval toward a student's behavior. Examples: frowning, looking at ceiling, shaking fist, any expression which made fun of or derided a student.

3) physical contact - any form of corporal punishment. Examples: grabbing student's arm, pushing a student, slapping, spanking.

Observations concerning the teacher's consequating behavior focused on approval and disapproval responses which followed student behavior. To facilitate the recording of teacher responses to student behavior, teacher observation categories developed by Masden & Masden (1974) were used.

Aa. Approval responses which indicated that academic work was correct. This category included commendation for the correct answer, not for "working hard."

As. Approval responses for appropriate social behavior. This category included commendation for following rules, staying on-task, raising hand before speaking, etc. (See student behaviors)

Da. Disapproval responses which indicated that academic work was incorrect.

Ds. Disapproval responses for inappropriate social behavior. (See student behaviors)

(Aa). An approval mistake following academic behavior. The teacher indicated an academic response was correct when, in fact, it was incorrect.

(As). An approval mistake following social behavior. The teacher gave approval to inappropriate social behavior. For example, the teacher may have walked over and given academic help to a child who was talking loudly across the room.

(Da). A disapproval mistake following academic behavior. The teacher indicated an academic response was incorrect when, in fact, it was correct.

(Ds). A disapproval mistake following social behavior. The teacher disapproved an appropriate social behavior. This mistake occurred if the teacher delayed in disapproving an inappropriate response and then disapproved after the student was back on task.

Response Definitions: Student Behaviors

Two aspects of student behavior, appropriate responses and inappropriate responses, were observed during all conditions.

Appropriate behavior. Appropriate behaviors included any on-task behavior in which the student's verbal and motor responses were appropriate to the learning activity and were in accordance with classroom rules. Examples: looking at paper or book; writing on paper; answering teacher's question; listening to the teacher; raising hand to be recognized in a group discussion; playing or working quietly with a game after an assigned task had been completed.

Inappropriate behavior. Inappropriate behaviors included any off-task behavior. On-task recording simultaneously provided the frequency of off-task behavior (mutually exclusive categories). However, in addition to recording on-task, the occurrences of two specific off-task behaviors were recorded during all conditions:

1) out-of-seat - leaving the seat or moving the desk (three feet or more) without permission. Permission was defined as raising hand, being recognized by teacher, and receiving permission to leave the seat.

2) talking-out - any verbal noise that broke classroom rules or interrupted the learning activity. Examples included: talking to the teacher or a classmate without permission; calling out the answers without being recognized; singing, whistling, making noises. The talking-out response had to be audible for it to be recorded.

Observation and Recording

Observations were made at the same time each morning by two observers during a 30-min. academic period. The first 10 min. and last 10 min. of the period were used for observing and recording behavior. The middle 10 min. were used for tabulating data and for providing feedback to the teacher on her performance in dispensing reinforcement. Both interval recording and time-sampling procedures were used to record the occurrence of behaviors.

Apparatus. A cassette recorder and two cassette tapes with pre-recorded time signals were used to accurately measure the observation intervals. The time signals ("clicks") acted as auditory stimuli for the observer to begin an observation interval or a recording interval. When assessing the reliability of observations, two observers listened to the same tape (same time signals), thus reducing unreliability due to time differences. The design of the present study required two observers to independently monitor different behaviors. Therefore, two different pre-recorded tapes (A and B) were used.

Cassette tape A was used in recording teacher consequating behavior and time-on-task of three target students. The tape produced a signal every 10 sec. and was used for two 10-min. observation periods each day. To facilitate observation and recording, each observation interval was identified on the tape. For example, the spoken stimulus "2a" following a signal on the tape informed the observer that the first observation interval in the second minute was beginning. The stimulus "5c" indicated that the third observation interval in the

fifth minute was beginning.

Cassette tape B was used in recording talk-outs and out-of-seats. This tape, which also was used during the two 10-min. observation periods, produced 20 signals at intervals varying from 20 sec. to 120 sec. The average time between signals was 60 sec., and the sequence of the varying time intervals was determined by using a table of random digits.[1]

Observer 1. Observer 1 recorded the occurrences of: a) teacher approval for appropriate behavior; b) teacher disapproval for inappropriate behavior; c) teacher mistakes of consequation; and d) time-on-task of three target students. To accomplish the above, Observer 1 performed three tasks during each 20-sec. observation-recording cycle. First, the observer looked at the teacher for 10 sec., mentally noting the teacher's consequating behavior and its antecedent student behavior (i.e., was the teacher's response correct, Aa, or mistaken, (Aa), in the situation?). Second, when cassette tape A "clicked" signalling the end of the observation interval and the beginning of the 10-sec. recording interval, the observer quickly counted the number of target students (1, 2, or 3) who were on-task. Third, the observer used the recording interval to record the teacher and student behaviors which he had just observed. When the cassette tape "clicked" again signalling the end of the recording interval, the observer began the cycle once more by immediately looking at the teacher (first task). The record-

---

[1] Runyon, R. and Haber, H. Fundamentals of Behavioral Statistics (Table Q).

ing form used was adapted from Masden and Masden (1974).[2]

Daily measures of teacher approval, disapproval, and mistakes of consequation were computed in two ways: a) Each behavior was expressed in terms of the percentage of observational intervals in which it occurred. The percentage of occurrences of a behavior was found by dividing the number of intervals in which the behavior was recorded by the total number of intervals over which observation took place. For example, if teacher approval (Aa and As) occurred in 5 intervals out of 60 total intervals in a 20-min. observation period, then teacher approval occurred during 8% of the observation intervals (5 divided by 60 equals .08). b) Each behavior was also expressed as a percentage of the total number of teacher consequences given during a daily observation period. For example, if all instances of teacher consequences occurred in only 20 of the period's 60 intervals, and if disapproval (Da and Ds) occurred in 10 of those 20 intervals, then disapproval made up 50% of the day's total teacher consequences (10 divided by 20 equals .50).

A daily measure of time-on-task for the three target students consisted of the ratio of recorded on-task occurrences to the number of possible on-task occurrences. For example, if out of 180 possible on-task occurrences (3 students time-sampled 60 times per day) the recorded number of on-task occurrences was 90, the on-task percentage for

---

[2]See Appendix for copy of recording form A.

that day was 50% (90 divided by 180 equals .50).

Observer 2. In all conditions in which the group contingency game was used (see Experimental Conditions), the teacher acted as Observer 2. She recorded behaviors by placing marks on the blackboard. In all conditions in which the game was not used (including baseline), an alternate observer acted as Observer 2. He recorded behaviors on recording form B.[3]

Observer 2 focused on the behavior of all the students in the class. He/she recorded talk-outs and out-of-seats occurring during the observation period by using a time-sampling procedure. In the two 10-min. observation periods, cassette tape B produced 20 signals on the average of one signal every 60 sec. Upon hearing the signal, Observer 2 noted if any student in the class was talking-out or out-of-seat and then recorded occurrences in the appropriate column (talk-outs, out-of-seats). For each observation (signal) a maximum of two marks could be recorded, one in each behavior column.

Daily measures for talk-outs and out-of-seats were computed separately. The measure consisted of the ratio of recorded occurrences to the number of possible occurrences in an observation period. For example, if out of 20 possible talking-out occurrences the recorded number of talk-outs was 5, the talk-out percentage was 25% (5 divided by 20 equals .25).

Reliability. Eight to ten sessions of reliability training were

---

[3]See Appendix for copy of recording form B.

conducted in the target classroom prior to beginning the baseline condition. Pre-baseline reliability indices were established for: a) the use of recording form A; b) the four behaviors recorded by Observer 1; and c) the two behaviors recorded by Observer 2. There was at least one reliability check for the recorded behaviors during each condition of the study.

The reliability of recording form A as an instrument for recording teacher behavior was computed by dividing the number of intervals in which the observers were in exact agreement on the code by the total number of intervals in which both observers recorded a teacher response.

The reliability of Observer 1's recording of each of three teacher behaviors (approval to appropriate behavior - Aa, As; disapproval to inappropriate behavior - Da, Ds; and mistakes of consequation - (Aa), (As), (Da), (Ds)) also was computed separately. For example, to calculate reliability for approval, each discrete symbol denoting approval (Aa or As) was checked on both observer forms in every interval for agreements. Disagreements were checked in the same manner. Finally, the percentage of reliability for approval was computed by dividing the total number of agreements (Aa + As) by the total number of agreements plus disagreements (Aa + As).

Observer 1's reliability in recording time-on-task of three target students was assessed by considering each interval separately. A reliability percentage was computed for each interval by dividing the number of observer agreements by the number of students under observation. If both observers agreed that two students were on-task and one

was off-task, then the agreements (3) divided by the number of students being observed (3) equaled 100%. However, if one observer recorded all three students on-task while the second observer recorded only one of the students on-task, then agreements (1) divided by students being observed (3) equaled 33%. The sum of the interval reliability percentages was divided by 60 (number of observation intervals) to yield a reliability percentage of on-task recording.

Observer 2's reliability was computed separately in recording talk-outs and out-of-seats. The number of observer agreements (occurrences and non-occurrences) was divided by the total number of time-samples to yield a reliability percentage. For example, if both observers agreed that on 16 of the 20 time-samples talking-out was occurring, then the reliability percentage for recording talk-outs was 80% (16 divided by 20 equals .80).

Table 1 shows the results of inter-observer reliability checks conducted during the study. The average reliability percentages for the three student behaviors (talk-outs, out-of-seats, and time-on-task) met or exceeded the traditional criterion of an .85 to .90 reliability index. It should be remembered that each of the student behaviors was recorded at random time-samples and that observer agreement was counted if both observers agreed on either the occurrence of the behavior or its non-occurrence at a given time-sample.

The average reliability percentages for the three teacher behaviors (approval, disapproval, and mistakes of consequation) were somewhat lower than .85, but this readily can be attributed to the more stringent

Table 1

Reliability indices for the recorded behaviors during each condition of the study.

Behaviors	Conditions							Ave.
	B_1	G	$G+F_1$	B_2	$G+F_2$	F.B. only	F-up	
Teacher Approval	50	69	84	46	73	80	100	72
Teacher Disapproval	73	71	62	79	78	64	79	72
Teacher Mistakes	63	0	*	*	100	100	25	58
Time-on Task	89	98	86	96	92	-	86	91
Talk-Outs	90	100	100	-	95	-	85	94
Out-of-Seats	95	95	90	-	95	-	95	94
Coding Form	85	85	96	83	89	88	97	89

*Note: Neither observer recorded an occurrence of the behavior during the reliability check.

method used to assess reliability of teacher behaviors. The reliability index was computed by using the following formula: agreements divided by (agreements + disagreements) equals reliability. However, intervals in which both observers recorded no occurrence of the behavior were not counted as agreements. (Many previous studies have counted non-occurrence intervals as agreements when computing inter-observer reliability percentages.) The present method of computing reliability in interval recording studies is greatly influenced by the frequency of the behavior being observed, with low-frequency behaviors yielding either very high or very low reliability indices. However, recent authors (Masden & Masden, 1974; Hawkins & Dodson, 1975) have recommended this method as being more valid even though it may yield an index lower than what has been traditionally accepted in the field of behavior modification.

Group Contingency Game

The teacher attended two 45-min. inservice sessions in which the application of a group contingency technique was explained to her. After becoming familiar with the rationale and principles underlying the group contingency, the teacher introduced the technique to her students as a "new game" to be played each day. The rules for the new game were posted on the blackboard and consisted of the following statements: a) Please be perfectly quiet after the bell has rung; b) Please stay seated in your own desk; c) Please raise your hand and wait to be called on before requesting permission to talk or to leave your desk. The teacher read these posted classroom rules to the students the first

thing each morning.

The game was played each morning during two different academic periods (9:00 - 10:00, language arts; 10:45 - 11:30, math). A small "bell ring" at the teacher's desk signaled the beginning of an academic period. The teacher then explained that she would be looking up from time to time to see if everyone was obeying the classroom rules. If the teacher saw a student breaking one of the classroom rules, she placed a mark on the blackboard under one of two pictures: picture 1 (in-seat) - a boy sitting in his seat, raising his hand, and then walking toward the teacher's desk; picture 2 (talk-out) - a girl sitting in her seat, raising her hand, and then talking to the teacher. Out-of-seat infractions were recorded on the blackboard under picture-1. Talking-out infractions were recorded on the blackboard under picture-2. The children were told that if there were eight or fewer marks on the blackboard at the end of the academic period, then all the students in the class would be entitled to a reward. Rewards included extra recess time, free play time in the class, a popcorn party, favorite stories read by the teacher, large poster paper on which the children could paint, etc. The academic periods were spaced approximately 30 min. apart; therefore, the children essentially were working for the free time between academic tasks.

A single student could contribute a maximum of 50% of the class' rule infractions per period (e.g., four infractions if the limit was eight). If a student accumulated more than 50% of the class' rule infractions in one period, he/she was not allowed to play the game for

two successive periods. (In the present study, such a situation did not occur.)

Teacher Training Procedure: Game + Observer Feedback

The teacher attended two 75-min. inservice sessions in which principles and applications of positive classroom discipline were discussed. The first session stressed the use of approval for appropriate behavior and ignoring inappropriate behavior. The teacher was also introduced to the observational categories used in this study (see teacher behaviors and student behaviors). In the second session the teacher was provided with graphs of her own approval and disapproval behavior based on observations made during the baseline and game conditions. The graphs were explained, specific questions were answered, and some classroom situations were role-played. The purpose of these inservice sessions was not to produce a qualified behavioral technician, but rather to introduce the teacher to some new management techniques which she would be applying under supervision.

The group contingency game was continued in this condition; however, it was supplemented by factual feedback to the teacher concerning her consequating behavior. Utilizing graphs of the teacher's behavior in the first two conditions, daily behavioral goals were established for the teacher in three performance areas:

1) number of approvals for appropriate social behavior.
2) number of disapprovals for inappropriate social behavior.
3) number of mistakes of consequation.

To help the teacher meet her daily goals in the three performance areas,

written feedback on 4"x 6" index cards was given to the teacher two times during each observation period. One feedback card summarized the first 10 min. of observation and was carried to the teacher during the observer's break. The second feedback card was cumulative, including a summary of the entire 20 min. of actual observation. The second card was placed on the teacher's desk as the observers left the classroom.

The written information on the feedback cards consisted of abbreviations of the three performance areas mentioned above with a corresponding feedback number for each area. Depending on the teacher's response rate in a particular area, the feedback number was written in either red or blue pencil. If the teacher's response rate in a particular area (e.g., As - approval to appropriate social behavior) was compatible with meeting the daily goal for that area, then the feedback number was written in blue pencil. However, if her response rate was lagging behind the rate needed to meet the daily goal, then the feedback number was written in red pencil. For example, the teacher may have had a daily goal of seven approvals. If after 10 min. of observation time she had made only one approval response, her rate was too slow to meet the goal and the observer wrote a red "1" beside the "approval" area on the feedback card. With the same daily goal of seven, five teacher approvals in the first 10 min. of observation would have produced a blue "5" beside the "approval" area, because five is more than halfway to the goal of seven. Conversely, in attempting to modify disapproval behavior, the teacher tried to reduce her dis-

approval responses during the observation period. If the daily goal in the disapproval area was six, then a red "4" on the first feedback card would have indicated that the teacher had made four disapproval responses in the first 10 min. of observation and that at this rate she would not achieve the goal of six or fewer disapprovals. Feedback in the other performance area (mistakes of consequation) was provided in a similar manner.

Twice-weekly conferences between the teacher and observer were held to review data, to establish new performance goals, and to discuss specific problems which arose in implementing the strategy.

Experimental Conditions

To implement the teacher-training strategy, a reversal design (ABCACD) consisting of six conditions and a follow-up was employed.

A	B	C	A	C	D	
$Baseline_1$	(Step 1) G.C. Game	(Step 2) G.C. Game + $Feedback_1$	$Baseline_2$	G.C. Game + $Feedback_2$	(Step 3) Feedback Only	Follow-up

Time

Behavior categories (Masden & Masden, 1974) were used to record frequencies of both teacher and student behavior. At the end of the baseline period, a series of experimental procedures were introduced one at a time and the effects on both teacher and student behavior were observed

across all conditions. A follow-up condition took place after training was completed. The purpose of follow-up was to determine if the effects of training had stabilized, increased, or declined.

Baseline$_1$. The teacher was instructed to behave in her usual manner. The observers recorded designated behaviors using the definitions stated above. Baseline$_1$ consisted of five observation days.

Game. The group contingency game was introduced into the class (see G. C. Game, p. 24). The teacher was inserviced on the use of the game, but she received no feedback or instruction relating to her consequating behavior. This condition was terminated after five days since the class remained below its rule infraction limit during 90% of the academic periods.

Game + Feedback$_1$. The group contingency game was supplemented by observer feedback to the teacher concerning her consequating behavior (see Teacher Training Procedure, p. 26). This condition was terminated when the teacher reached the target criterion rates for consequating responses (approval, disapproval, and mistakes) established during Baseline$_1$.

Baseline$_2$. This condition represented a return to baseline. The students were told that the game would not be played any longer. The teacher was shown the graphs illustrating her original baseline rate of approval, and she was asked to approve student behavior at a similar rate during this condition.

Game + Feedback$_2$. The students were told that they were going to play the game again. At this point, all procedures which were used in

Game + Feedback$_1$ were reintroduced.

Feedback Only. The game was once again discontinued, but the observer continued to provide feedback to the teacher. The teacher's daily goals of approval and disapproval were the criterion rates established in the Game + Feedback conditions.

Follow-up. A follow-up condition took place three weeks after the training had been completed. Behavior was recorded under conditions similar to those in baseline. The teacher had been instructed not to re-introduce the group contingency game into the classroom until follow-up data was collected.

Chapter 3

RESULTS

The experimental reduction of disruptive student behavior (talk-outs and out-of-seats) was considered a pre-requisite to training the teacher to use more approval and less disapproval in the classroom. It was important that a positive change in student behavior be demonstrated; therefore, changes in student behavior will be discussed first.

Student Behavior. The results in Figure 1 and Table 2 show that talk-outs and out-of-seats decreased to low levels of occurrence in all conditions in which the group contingency game was used. In the Game condition, the group contingency game was 100% effective in reducing talk-outs. That is, the reduction of talk-outs met the experimental criterion (see Hypothesis section, pp. 9-12). The game was 68% effective in reducing out-of-seats (.68 treatment effectiveness derived by dividing observed out-of-seats decrease of 17% by out-of-seats criterion of 25%). In the Game + Feedback conditions, the combination of game and observer feedback to the teacher[4] was 100% effective in reducing talk-outs and 88% effective in reducing out-of-seats. However, in conditions in which the game was not used, talk-outs increased and out-of-seats approximated or exceeded its original baseline rate.

---

[4]Under the category "observer feedback" are included instructions for the teacher to approve appropriate behavior and ignore inappropriate behavior whenever possible.

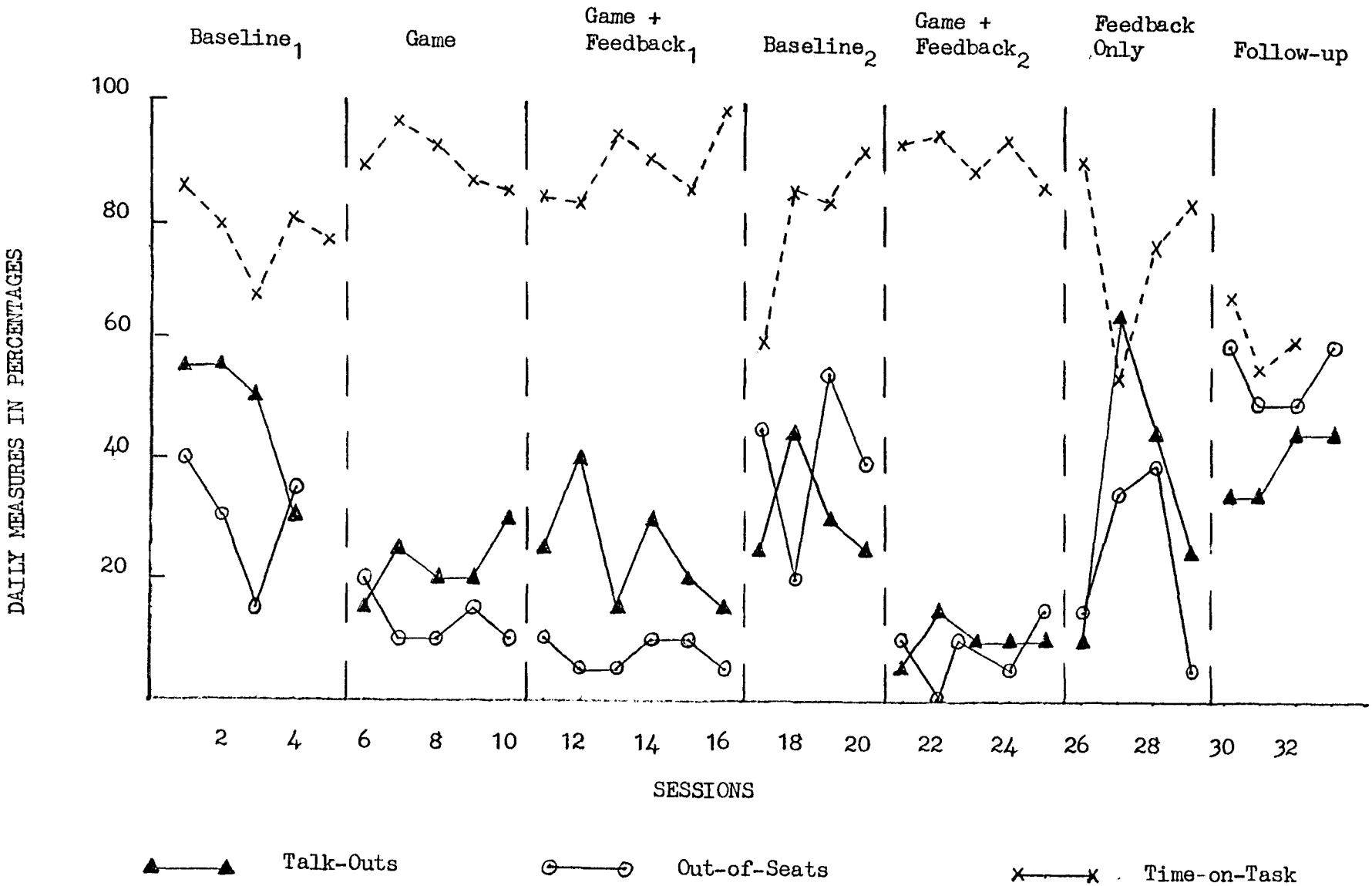

Figure 1. Daily measures of talk-outs, out-of-seats, and time-on-task.

Table 2

Average measures of student behaviors during each condition.

Conditions	Behaviors		
	Talk-outs	Out-of-Seats	Time-on-Task[a]
$Baseline_1$	48%	30%	78%
Game	22%	13%	91%
Game + $Feedback_1$	24%	8%	91%
$Baseline_2$	31%	40%	80%
Game + $Feedback_2$	10%	8%	91%
Feedback Only	36%	25%	76%
Follow-up	40%	55%	62%

[a]Note: This measure refers to the behavior of three target students only.

In the Feedback Only condition, observer feedback was only 48% effective in reducing talk-outs and only 20% effective in reducing out-of-seats. Follow-up data indicated a further increase in disruptive behavior, with out-of-seat behavior reaching its highest level of the entire study, almost double the baseline rate.

Time-on-task behavior of three target students was measured in each condition to determine if the game, the observer feedback, or a combination of the two would produce an increase in on-task behavior. The results in Figure 1 and Table 2 show that when the game was supplemented by observer feedback to the teacher, there was no increase in time-on-task behavior. However, when the game itself was discontinued in the final two conditions (Feedback Only and Follow-up) of the study, time-on-task showed a consistent decrease, falling considerably below its baseline level.

Teacher Behavior. Table 3 shows each teacher behavior (e.g., approval) as a percentage of the total number of consequences given by the teacher (approval + disapproval + mistakes). This percentage, which is not influenced by overall changes in the teacher's rate of consequating student behavior, allows a ratio comparison of teacher behaviors across experimental conditions. Table 3 indicates that the introduction of the group contingency game (Game), without observer feedback, did allow the teacher to increase her percentage of approving appropriate behavior and to decrease her percentage of mistakes of consequation. However, even though the level of talk-outs and out-of-seats (see Table 2, p. 33) decreased while the game was being played, the teacher's per-

Table 3

Average measures of teacher behaviors during each condition expressed as percentage of consequences given.

Conditions	Behaviors		
	Approval	Disapproval	Mistakes
$Baseline_1$	24%	52%	24%
Game	34%	61%	5%
Game + $Feedback_1$	61%	37%	3%
$Baseline_2$	37%	59%	5%
Game + $Feedback_2$	55%	41%	5%
Feedback Only	48%	46%	6%
Follow-up	25%	64%	11%

centage of disapproving inappropriate behavior increased in this condition.

Talk-outs and out-of-seats remained at a low level when the game was supplemented by observer feedback to the teacher. In the Game + Feedback$_1$ condition, the teacher was able to meet the experimental criteria for approval (20% increase over baseline) and for mistakes of consequation (12% decrease). However, she was only 75% effective in meeting the disapproval criterion (20% decrease from baseline). A return to baseline conditions (i.e., the withdrawal of the game and observer feedback) produced a substantial increase in talk-outs and out-of-seats. The teacher's disapproval percentage increased and her approval percentage decreased in Baseline$_2$. When treatment procedures were re-introduced in Game + Feedback$_2$, talk-outs and out-of-seats returned to a low level, and the teacher was able to meet criterion for approval and mistakes. However, she was only 55% effective in meeting the disapproval criterion. The game was withdrawn once again in the Feedback Only condition, and talk-outs and out-of-seats showed a sharp increase. Despite this increase in disruptive student behavior, the teacher, with the help of observer feedback, met criterion for approval and mistakes. She was only 30% effective in reducing disapproval. It should be noted that only 7 out of 11 students were present on the first day of the Feedback Only condition. These children were exceptionally well-behaved and the teacher responded with her highest daily approval percentage of the entire study. A Follow-up condition occurring three weeks after training had ended showed a high increase in

talk-outs and out-of-seats. In follow-up, neither the group contingency game nor observer feedback was used in the classroom. Results show that the approval percentage decreased to a level approximating Baseline$_1$; the disapproval percentage increased past its Baseline$_1$ level; and the mistakes of consequation increased substantially though it still remained below the experimental criterion.

The results in Figure 2 and Table 4 indicate that teacher approval was highest in conditions in which the teacher received observer feedback concerning her consequating behavior. Teacher disapproval varied considerably from day to day but it was lowest in the Game + Feedback conditions. The teacher made her greatest number of mistakes of consequation in Baseline$_1$ and Follow-up, conditions in which neither the group contingency nor observer feedback was employed. Table 4 also shows an increase in the total number of consequences given by the teacher in the last two conditions of the study.

A final aspect of teacher behavior which deserves mention is the comparison of occurrences of academic approval to occurrences of social approval during each condition of the study. The reader is reminded that in this study academic approval (Aa) refers to approval responses for correct academic work. Social approval (As) refers to approval responses for appropriate social behaviors such as on-task or hand-raising. Table 5 contains average measures of academic approval and social approval during each condition. Results show that the teacher began to give much more approval to appropriate social behavior when observer feedback was introduced in the Game + Feedback$_1$ condition.

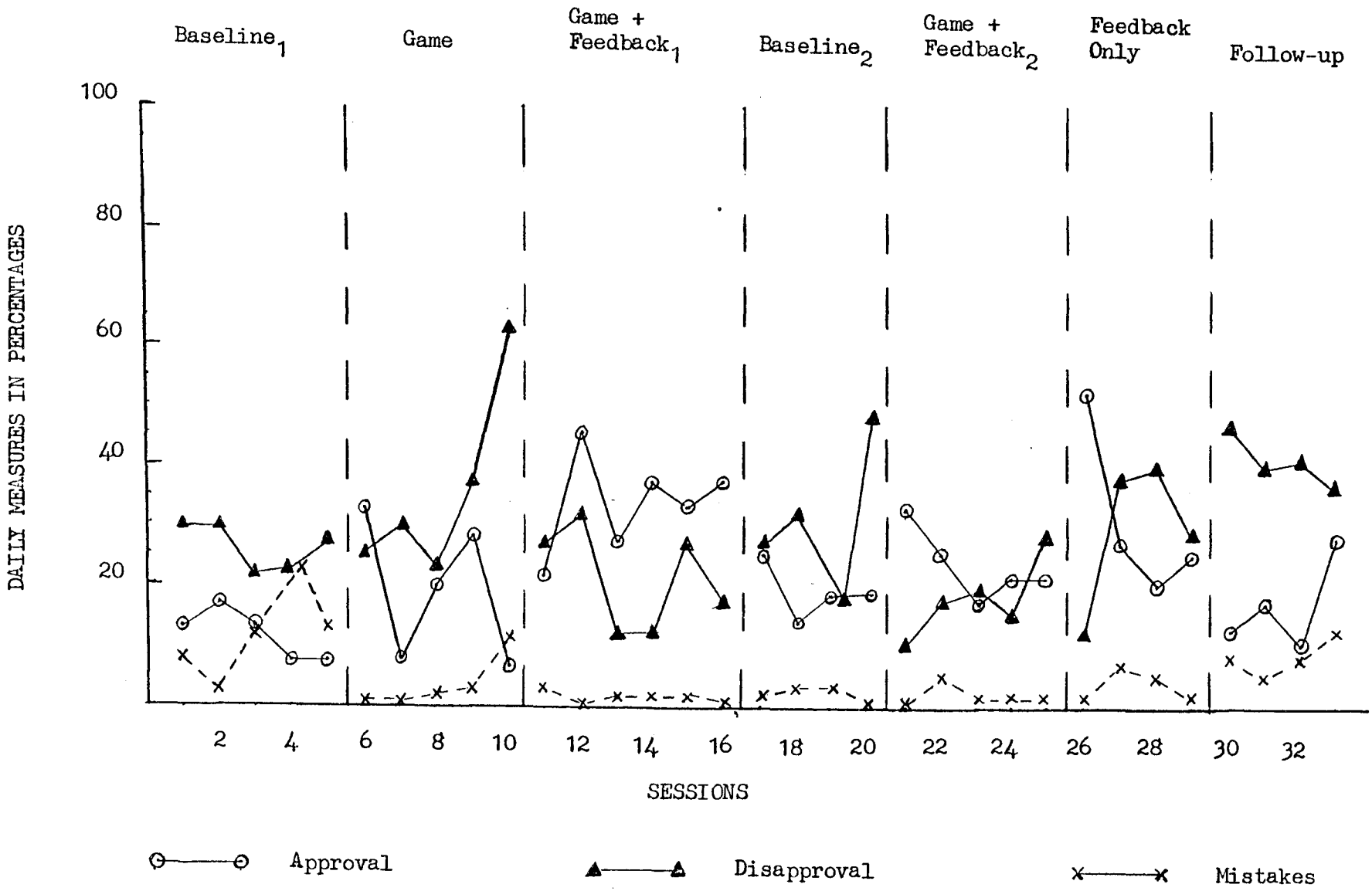

Figure 2. Daily measures of teacher approval for appropriate behavior, teacher disapproval for inappropriate behavior, and teacher mistakes of consequation.

Table 4

Average measures of teacher behaviors during each condition expressed as percentage of observation intervals.

Conditions	Behaviors			
	Approval	Disapproval	Mistakes	Total Consequences
$Baseline_1$	12%	26%	12%	50%
Game	19%	35%	3%	57%
$Game + Feedback_1$	34%	21%	2%	57%
$Baseline_2$	19%	31%	2%	52%
$Game + Feedback_2$	24%	18%	2%	44%
Feedback Only	31%	30%	4%	65%
Follow-up	17%	42%	8%	67%

Table 5

Average daily number of teacher approvals during each condition.

Conditions	Behaviors		
	Total Number of Approvals	Approval to Academic	Approval to Social
$Baseline_1$	7.2	7.0	0.2
Game	11.6	10.2	1.4
$Game + Feedback_1$	20.0	11.8	8.2
$Baseline_2$	11.3	8.3	3.0
$Game + Feedback_2$	14.2	8.6	5.6
Feedback Only	18.5	8.3	10.3
Follow-up	10.0	6.3	3.8

In each succeeding condition, excepting Baseline$_2$, social approval comprised at least one-third of the teacher's total number of approval responses. In Feedback Only, a condition in which talk-outs and out-of-seats increased by 26% and 17% respectively, the teacher was still able to give a high rate of social approval.

Chapter 4

DISCUSSION

The purpose of this study was to measure the effectiveness of a strategy designed to modify a classroom teacher's consequating behavior. The central hypothesis stated: A group contingency game plus observer feedback will enable a teacher to increase her percentage of approving appropriate behavior and decrease her percentages of disapproving inappropriate behavior and of making mistakes of consequation. When the strategy of a group contingency game plus observer feedback was directly implemented in the classroom, it proved to be an effective method for training a teacher to use more approval and to make fewer mistakes of consequation in managing student behavior. The strategy was not fully effective in training the teacher to reduce her disapproval responses. As the components of the strategy were systematically withdrawn (first the game, then the observer feedback), the teacher began to revert to her pre-intervention reliance on aversive control. A follow-up condition showed clearly that the positive effects of training had not been maintained in the teacher's post-intervention behavior.

Pre-Intervention Classroom Environment. The study was conducted in a primary EMR class at the request of a first-year teacher and her school supervisor. After two months of school, the behavior of the students in the class had become chaotic. Loud yelling, fighting, running around the room, and chair-throwing often occurred during a

single academic period. Some of the students were openly defiant in their refusals to obey the teacher's directions. The emotional strain on the first-year teacher was noticeable. Although she ignored much of the inappropriate behavior, her attempts at discipline were characterized by loud scolding or repetitious threats which lacked consequences. Sending students to the principal's office, where corporal punishment and forfeiture of recess were tried, had proven of little value in curtailing the misbehavior.

The teacher did have some personal expectations concerning student behavior. Ideally, she wanted the students to raise their hands before asking a question or for permission to leave their seats. However, talking-out and being out-of-seat without permission were frequent behaviors in the classroom. The short attention spans of the primary EMR students and the teacher's inexperience in managing instructional activities were co-contributors to the disorganized environment. While teaching five to seven children in a small group activity, the teacher seldom had the attention of more than two students at a time. Also, other students constantly interrupted the small group instruction to ask questions about their seatwork assignments. When the students moved from seatwork to small group and vice-versa, the transition period (i.e., moving from one seat to another seat) could range from 5 min. to 10 min.

The absence of classroom discipline and the absence of teacher instructional experience were both key factors in the pre-intervention classroom environment. The present study focused on providing the

teacher with positive classroom discipline skills. Instructional techniques, including grouping procedures and materials assistance, were not introduced by the consultant during the intervention period. It was reasoned that an improvement in the teacher's behavior management skills would facilitate her acquisition of instructional competencies.

Effects of the Group Contingency Game. The group contingency game helped to decrease talk-outs and out-of-seats and helped to increase time-on-task behavior in each condition in which it was used. (Note: Measures of time-on-task in this study were inflated due to the teacher's emphasis on small group instruction and her minimum requirements for written seatwork. During group instruction, a student who finished his seatwork assignment and received no further instructions from the teacher was counted on-task if he simply remained in his seat.) Two elements of the group contingency game, rules and teacher enforcement of rules (i.e., placing a mark on the blackboard for a rule infraction), provided a structure and consistency to the classroom which had been lacking prior to intervention. During game conditions, student interruptions of small group instruction decreased, and the time required for changing instructional activities was greatly reduced.

The game encouraged the class as a whole to monitor inappropriate behavior. The students reminded each other of the rules and sometimes censured habitual rule violators who were costing the class

a chance at the group reward. While during baseline observation a majority of the 11 students contributed to the inappropriate classroom behavior, during game conditions only two, at most three of the students consistently broke the behavior rules. The game was won by the students in 80% of the sessions in which it was played. Following those "losing" sessions in which the students exceeded their limit of misbehaviors, the teacher and the consultant either strengthened the reinforcer (e.g., from 5 min. extra recess in the morning to 5 min. in the morning and 5 min. in the afternoon) or changed the reinforcer (e.g., from extra recess to a new art activity). This manipulation of the reinforcer enabled the class to win the game nearly every day. It should be noted that the teacher found it difficult to come up with new reinforcers as they were needed, a complaint voiced by many teachers in behavior modification studies. This was one area where the consultant provided suggestions and ideas.

The effects of the group contingency game on teacher behavior can best be examined in the Game condition (see p. 34), the condition preceding the introduction of observer feedback. The first effect of the game was to decrease the teacher's mistakes of consequation (e.g., approval to inappropriate behavior). The rules and behavior definitions seemed to make it easier for the teacher to discriminate appropriate from inappropriate behavior. A second effect was to increase the teacher's approval behavior. The data, however, shows that the teacher approval in the Game condition was directed toward correct academic responses,

not appropriate social behaviors. It seems that the game, by reducing disruptive behavior and interruptions of the teacher, actually increased the time available for the teacher to ask questions, for the students to respond, and for the teacher to approve correct responses. Since out-of-seats and talk-outs decreased in the Game condition, a corresponding decrease in teacher disapproval to inappropriate behavior might have been expected. This was not the case. In fact, the teacher's percentage of disapproving actually increased when the game was first introduced without observer feedback. This increase in disapproval may have been due to the teacher's initial lack of confidence in the controlling power of the game. (The reader is reminded that the game was simply the provision of a group reinforcer contingent on the students staying below a given number of misbehaviors in an academic period.) According to the rules of the game, the teacher could assign "misbehavior marks" only at given time samples (tape recorder signals). The teacher assigned the marks correctly but, perhaps fearing that the class would exceed their limit of misbehaviors, she repeatedly reminded, warned, and threatened the students regarding the possible loss of their reinforcer. Very few misbehaviors were ignored during the Game condition. This unexpected teacher reaction was responsible for the increase in disapproval.

Effects of Observer Feedback. When observer feedback to the teacher was introduced as a supplement to the group contingency game, the teacher was instructed to approve appropriate behavior and to ignore

inappropriate behavior as much as possible. At this point the teacher began to rely more on the managing effectiveness of the game, but she was still only 65% effective in reducing her disapproval to inappropriate behavior. In the Game + Feedback conditions, the teacher did begin to approve appropriate social behaviors such as on-task, in-seat, and hand-raising. Prior to the introduction of observer instructions and feedback, the teacher's approval had been restricted to acknowledging correct academic responses ("that's right" or "good"). With observer feedback, the teacher began to praise the children for following the rules of the game (e.g., "I like the way you raised your hand before talking" or "You people are doing great; we have only had one talk-out this morning."). On several days the feedback card at the halfway point in the observation session made the teacher aware that she was approving too little or disapproving too much. She often proceeded to correct the problem in the second half of the session, and thus met her daily goals for approval and disapproval. The teacher stated that she felt more in control of her classroom during the Game + Feedback$_1$ condition that at any other part of the study.

The effects of observer feedback were also recorded in the Feedback Only condition (see p. 36), four sessions in which the group contingency game was not played. Without the game, talk-outs and out-of-seats returned to high levels of occurrence even though the teacher was able to maintain a relatively high percentage of approval. Although the behavior modification literature strongly supports the pre-

mise that teacher approval is an effective reinforcer for primary-age children, in the Feedback Only condition of the present study, contingent teacher approval did not seem to have a positive effect on student behavior. The increase in talk-outs and out-of-seats might be explained in several ways. First, the connection between the group contingency game and teacher approval may not have been sufficiently strong for praise alone to assume the reinforcing properties of winning the game. Second, the ratio of approval to disapproval was only 1 to 1 while Masden and Masden (1974) have cited an ideal ratio of 4 to 1. Third, the teacher's approval responses may have lacked the variety, spontaneity, and sincerity so necessary in positive classroom interaction. Even with observer feedback, the teacher found it difficult to vary her verbal phrases of praise. The repetitive use of such phrases as "very good," "okay," and "I like all these nice hands raised in the air" may have weakened the effectiveness of the teacher's approval during the Feedback Only condition.

Effects of the Experimental Design. The results of this study were influenced considerably by the experimental design used to implement the teacher training strategy in the classroom. A quasi-reversal design (ABCACD) with six conditions and a follow-up was employed. Each condition contained from four to six daily observation sessions. The reversal design was chosen for two reasons: a) It controlled for variation in student and teacher behavior across time. For example, without a return to baseline conditions and then re-instatement of the treatment,

positive changes in student behavior could logically have been attributed to other factors such as developmental maturity or to more interesting and efficient instruction; b) It necessitated the observers being in the classroom only 30 min. each day. Since both observers were actively-employed itinerant resource teachers, the amount of time they could spare from their daily schedules was limited.

In retrospect, the specific research design used in this study may have severely impaired the long-range effectiveness of the teacher-training strategy. As stated before, the demonstrated improvement of student and teacher behavior in Game + Feedback$_1$ was not maintained in the follow-up observation sessions. It seems likely that the six different conditions of the study, each with its own procedures and behavior requirements, impeded the teacher's stable acquisition of positive management skills. If the goal was to help the teacher develop structure and consistency in managing children, then applying the game (Game + Feedback$_1$), taking it away (Baseline$_2$), re-applying it (Game + Feedback$_2$), and taking it away again (Feedback Only) certainly represented an inconsistent means of reaching this goal.

The limited number of sessions in the first teacher training condition (Game + Feedback$_1$) was a second characteristic of the research design which may have affected follow-up results. The teacher received only six 30-min. sessions of observer feedback before she was asked to discontinue the game and to revert to her baseline level of approval. This may have been insufficient time for the teacher to stabilize her newly-acquired mode of approving appropriate behavior. Such a quick

return to baseline would have been appropriate if the major purpose of the study had been to show the functional relationship between two variables (i.e., talk-outs decrease when group contingency game is used). However, in a teacher training study where the purpose is to help a teacher acquire viable management skills, the long-range effects on teacher behavior are probably more important than a demonstration of functional relationships between variables during the intervention period. It is impossible to predict what influence a longer training condition would have had on follow-up results. But when the 6 days of "approval" training are weighed against the 50 days of negative classroom interaction and disorganization which preceded the training condition, the assumption that additional training may have made a difference cannot be ruled out.

The short time-frame in which training took place each day is a third experimental factor which should be discussed. The teacher spent the entire school day with her EMR class. However, the group contingency game was played exclusively during the morning academic periods, and the observers were in the room for only 30 min. of the first period, language arts. The teacher, therefore, received feedback on her consequating behavior only during the language arts period. The issue being raised here is not the generalizability of training to the rest of the teacher's school day, but rather the effects of the rest of the school day on the next morning's training session. For example, if a very productive 9:30 to 10:00 training session was followed by an unpleasant, even unbearable afternoon for the teacher, what effect did the "bad"

afternoon have on the teacher's approval behavior the following morning at 9:30? More importantly, which time-frame (9:30-10:00 or 11:00-3:30) exerted more influence on the teacher's post-intervention behavior towards the students?

The fact that the teacher-training strategy was implemented following two months of negative student-teacher interaction is a final experimental influence which, although difficult to measure, certainly deserves consideration. Having lived together for 40+ days, 6 hours per day, both the students and teacher had time to form fairly stable impressions of each other prior to intervention. No doubt some of these impressions were positive and some negative. However, the negative feelings regarding discipline may have been firmly established in the first two months of school, because of the pervasive disorder and the resulting daily confrontations between students and teacher. Such a pattern of negative interaction, once established, is not easy to change. If "approval" training had been initiated after only two or three weeks of the school year had elapsed, the training's effect on student-teacher interaction may have been very different.

Implications. The present study demonstrated that an inservice training strategy (group contingency game plus observer feedback) could enable a teacher who had been experiencing serious discipline problems to make positive changes in her consequating behavior. Even though the positive effects of intervention were not maintained in follow-up, during training conditions the teacher met criterion goals for increasing approval and for reducing mistakes of consequation. She also reduced

her disapproval percentage, but not to criterion. The results further suggested that both elements of the training strategy, the game and the observer feedback, were needed to make the teacher a positive and effective manager of classroom behavior. Since the behavior modification literature contains numerous studies in which behavior games and observer feedback used singly were successful in reducing disruptive behavior, the present study's implication that both training elements are required merits explanation.

When the group contingency game was used alone in this study (Game condition), the behavior of the students improved considerably. However, though inappropriate behavior in the classroom decreased, the teacher actually increased her disapproval of the students. It seems that behavior games may inadvertently focus teacher attention upon inappropriate behavior rather than upon appropriate behavior, producing a situation which is incongruent with the philosophy of most behavioral psychologists (Meacham & Wiesen, 1969; Clarizio, 1971; and Stainback et al., 1973). Unfortunately, previous studies (Barrish et al., 1969; Medland & Stachnik, 1972; and Billingsley & Smelser, 1974) have not examined the effects of behavior games on teacher behavior. This is an area which calls for further research. It is of dubious value for psychologists to put such a powerful management technique into the hands of teachers who find it difficult to praise improvements in student behavior.

When observer feedback was used alone (Feedback Only condition), the teacher was able to maintain a fairly high percentage of approval, but the level of inappropriate student behavior increased considerably.

These results raise some interesting questions. A widely-accepted maxim in applied behavioral research is the effectiveness of teacher approval in managing the behavior of elementary-age school children. Several studies (Hall et al., 1968; Masden et al., 1968; and Cooper et al., 1970) have reported success in training teachers to manage disruptive behavior through the use of contingent approval and ignoring. Underlying each of these studies is the assumption that a teacher has the power to manage her students if she will only use her social reinforcement behavior in an appropriate manner. The results of the present study do not necessarily refute the validity of this assumption. The increase in disruptive behavior in the Feedback Only condition can be explained by: a) an inadequate ratio of teacher approval to disapproval; and b) a lack of spontaneity and variety in teacher approval responses. However, another way of explaining the Feedback Only (and Follow-up) results involves examining the classroom conditions under which the teacher attempted to deliver praise and disapproval. Each time the group contingency game was played, student behavior improved (fewer talk-outs, fewer out-of-seats). In the game conditions, therefore, the students exhibited appropriate behaviors which could be praised. When the game was not played, however, the students were so rowdy that the teacher found it very difficult to praise appropriate behavior and/or to ignore the overwhelming amount of misbehavior. Instead of the expected "teacher behavior will control student behavior" paradigm, the results might be interpreted as: "game controlled student behavior; student behavior controlled teacher behavior." Consultants who ask teachers to

use contingent approval and ignoring are not providing faulty or damaging advice; however, this strategy alone may not produce satisfactory results in all classrooms.

An alternative strategy which was not employed in the present study would have been to pair teacher praise with a primary reinforcer (food) and then gradually to remove the primary reinforcer from the classroom. In the Game + Feedback conditions of the present study, the teacher's praise was paired with winning the game and the subsequent reinforcers, art activities and extra recess. However, the pairing was not immediate in a temporal sense (e.g., "Very good! Here is a piece of candy."). Also, the limited number of training sessions may not have allowed the students enough time to associate teacher praise with the activity reinforcers.

The two-part strategy of a group contingency game and observer feedback has promising implications for future behavior management training. For practical applications, a simple AB design, where A equals baseline and B equals the training condition (game plus feedback), would enable a school psychologist, principal, or guidance counselor to help a beginning teacher implement the strategy in his/her classroom. Without the experimental requirement to return to baseline conditions, the game plus feedback condition could be continued for as many days as the teacher felt it was needed. The training strategy may prove to be most helpful, not in an all-day, self-contained environment like the present study, but rather in an elemen-

tary class (e.g., math) where the teacher sees different students every 90 min. In this situation the game could easily be played for an entire period, thus assuring stability and consistency in the teacher's daily interaction with the students. Furthermore, the teacher could choose to employ the strategy during only one or two periods per day, allowing her to try less-structured management approaches with well-behaved classes.

Future experimental applications of the training strategy should consider two alternatives to the reversal design employed in the present study. First, an experimental group/control group design (six to eight teacher - Ss in each group) could be employed if a sufficient number of classrooms and trained observers were available. Second, in a single teacher's classroom, a multiple-baseline design could be implemented in which the training condition was introduced first in one time-frame while baseline observation was continued in a second time-frame. Later, the training condition could be introduced in the second time-frame and experimental effects could be compared. Each of these alternative designs will allow an initial training condition of indefinite length and will provide experimental control without requiring a return to baseline conditions.

The development of efficient, practical ways of training teachers to become effective classroom managers is an important need in education today. The present study has investigated one approach in training a beginning teacher to use positive discipline skills. Unlike many previous training models, the present focus was on changes

in teacher behavior as well as student behavior. Although the long-range effectiveness of the training strategy was not supported, both student and teacher behavior changed in a positive direction during a major portion of the intervention period. The results also indicated several ways in which methodological changes might improve future applications of the training strategy. Hopefully, some of the promising hypotheses generated by this study will be tested by future researchers in the important area of classroom management.

REFERENCES

Bandura, A. Principles of Behavior Modification. New York: Holt, Rinehart, & Winston, Inc., 1969.

Barrish, H. H., Saunders, M., & Wolf, M. M. Good behavior game: Effects of individual contingencies for group consequences on disruptive behavior in a classroom. Journal of Applied Behavior Analysis, 1969, 2, 119-124.

Billingsley, F. & Smelser, S. A group approach to classroom management: The behavior game. Teaching Exceptional Children, 1974, Fall, 30-33.

Breyer, N. L., Calchera, D. J., & Cann, C. Behavioral consulting from a distance. Psychology in the Schools, 1971, 8, 172-176.

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.

Brown, J. C., Montgomery, R., & Barclay, J. R. An example of psychologist management of teacher reinforcement procedures in the elementary classroom. Psychology in the Schools, 1969, 6, 336-340.

Chadwick, B. A. & Day, R. C. Systematic reinforcement: Academic performance of underachieving students. Journal of Applied Behavior Analysis, 1971, 4, 311-319.

Clarizio, H. F. Toward Positive Classroom Discipline. New York: John Wiley & Sons, 1971.

Cooper, M. L., Thompson, C. L., & Baer, D. M. The experimental modification of teacher attending behavior. Journal of Applied Behavior Analysis, 1970, 3, 153-157.

Geis, M. F. The effectiveness of teacher attention as a reinforcer in the conditioning and extinction of classroom behaviors of delinquent girls. Unpublished Masters Thesis, University of Richmond, 1971.

Hall, R. V., Fox, R., Willard, D., Goldsmith, L., Emerson, M., Owen, M., Davis, F., & Porcia, E. The teacher as observer and experimenter in the modification of disputing and talking-out behavior. Journal of Applied Behavior Analysis, 1971, 4, 141-149.

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

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

Hawkins, R. P. & Dodson, V. A. Reliability scores that delude: An Alice in Wonderland trip through the misleading characteristics of interobserver agreement scores in interval recording. Behavior Analysis: Areas of Research and Application. Eds. Ramp, E., & Semb, G. Englewood Cliffs, N. Y.: Prentice-Hall, Inc., 1975.

Masden, 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.

Masden, C. H., & Masden, C. K. Teaching/Discipline: A Positive Approach for Educational Development. Boston: Allyn & Bacon, Inc., 1974.

McKenzie, H. S., Egner, A. N., Knight, M. F., Perelman, P. F., Schneider, B. M., & Garvin, J. S. Training consulting teachers to assist elementary teachers in the management and education of handicapped children. Exceptional Children, 1970, 37, 137-143.

Meacham, M. L., & Wiesen, A. E. Changing Classroom Behavior: A Manual for Precision Teaching. Scranton, Pa.: International Textbook Company, 1969.

Medland, M. B., & Stachnik, T. J. Good behavior game: A replication and systematic analysis. Journal of Applied Behavior Analysis, 1972, 5, 45-51.

Morse, W. C., & Wingo, G. M. Psychology and Teaching. Glenview, Illinois: Scott, Foresman and Company, 1969.

Ringer, V. M. J. The use of a "token helper" in the management of classroom behavior problems and in teacher training. Journal of Applied Behavior Analysis, 1973, 6, 671-677.

Stainback, W. C., Payne, J. S., Stainback, S. B., & Payne, R. A. Establishing a Token Economy in the Classroom. Columbus, Ohio: Charles E. Merrill Publishing Co., 1973.

Tharp, R. G., & Wetzel, R. J. Behavior Modification in the Natural Environment. New York: Academic Press, 1969.

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.

Zimmerman, E. H., & Zimmerman, J. The alteration of behavior in a special classroom situation. Journal of the Experimental Analysis of Behavior, 1962, 5, 59-60.

APPENDIX

Sample behavior record forms.

Recording form A (used by obser. 1)

Obser. Pd. # _____ Observer _____

Begin Time _____ Date _____

End Time _____

Activity Code

# of students on-task

A.C.	min.	1	2	3	4	5	6
	1		1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds		1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds		1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds
	2	O	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds	O	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds	O	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds
	3	B	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds	B	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds	B	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds
	4	S	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds	S	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds	S	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds
	5	E	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds	E	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds	E	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds
	6	R	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds	R	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds	R	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds
	7	<	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds	<	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds	<	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds
	8	E	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds	E	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds	E	1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds
	9		1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds		1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds		1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds
	10		1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds		1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds		1 2 3 Aa As (Da) (Ds) (Aa) (As) Da Ds

Comments :

Recording form B (used by obser. 2)

Obser. Pd. # _____ Observer _____

Begin Time _____ Date _____

End Time _____

TIME-SAMPLE	Talk-Out	Out-of-Seat	TIME-SAMPLE	Talk-Out	Out-of-Seat
1			11		
2			12		
3			13		
4			14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Comments :

VITA

Robert Darrell Morris was born on November 25, 1947, in Durham, North Carolina. After graduating from Randolph-Macon College (B. A., psychology) in 1969, he worked as a VISTA volunteer in Western Kentucky, a prison interviewer in North Carolina, and a special education teacher in Hanover County, Virginia. In 1972, he began graduate study at the University of Richmond and will complete requirements for the M. A. in psychology in August, 1976. For the past two years (1974-1976), Mr. Morris has worked in four rural Virginia counties as a resource teacher to children with learning and behavior problems. In September, 1976, he will begin advanced graduate study at the University of Virginia in the areas of reading education and school psychology.