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The effectiveness of teacher attention as a reinforcer in the conditioning and extinction of classroom behaviors of delinquent girls

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THE EFFECTIVENESS OF TEACHER ATTENTION AS A REINFORCER IN THE CONDITIONING AND EXTINCTION OF CLASSROOM BEHAVIORS OF DELINQUENT GIRLS

BY

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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.

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ABSTRACT

The present study was designed to assess the effectiveness of a combination of teacher approval for appropriate behavior and teacher ignoring of inappropriate behavior in modifying the classroom behavior of institutionalized juvenile delinquents. In a classroom at a residential facility for female juvenile offenders, baseline recordings of student and teacher behaviors were collected. After baseline, the teacher introduced three rules specifying appropriate student behavior. Next, in a multiple baseline procedure, the teacher approved of the students' appropriate interrupting and ignored their inappropriate interrupting; later, she also approved of the students' not engaging in inappropriate talking and ignored their inappropriate talking. The greatest increase in appropriate interrupting and the greatest decrease in inappropriate interrupting occurred when the experimental treatment of teacher approval and ignoring was applied to them. The greatest increase in not engaging in inappropriate talking and the greatest decrease in inappropriate talking occurred when the experimental treatment of teacher approval and ignoring was applied to them. These results are evidence that the use of teacher supplied social consequences can be an effective behavior modification technique with juvenile delinquents.

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Chapter 1

INTRODUCTION

Educators and school psychologists who deal with behavior problems in classroom settings are becoming increasingly aware of the importance of the teacher's behavior in producing and eliminating inappropriate student behavior. A growing body of literature indicates that a teacher can strengthen desirable classroom behavior and can eliminate undesirable classroom behavior by a simple strategy of ignoring inappropriate behavior and attending to appropriate behavior. Specifically, this strategy is a combination of two experimental paradigms--operant conditioning and operant extinction. In operant conditioning, a response is followed by a reinforcing stimulus. If the stimulus indeed has reinforcing value for the organism, then the response for which it is a consequence will be strengthened. In operant extinction, a response is no longer followed by a reinforcing stimulus. If the removed stimulus has been maintaining the response, then the response will be weakened. Thus, when the teacher attends to appropriate behavior, she is attempting to increase that behavior by making her praise and approval contingent upon it. She assumes that the social consequences which she supplies are positively reinforcing for her students. When the teacher ignores inappropriate behavior, she is attempting to decrease that behavior by withholding her

attention from it. She assumes that the social consequences which she supplies have been maintaining the undesirable behavior.

Although the use of teacher supplied social consequences seems to be an ideal and natural facet of classroom management skills, it may possess a serious limitation. For many children teacher attention in the form of praise and approval does constitute positive social reinforcement; for these children, teacher attention strengthens the responses which it follows. However, for other children teacher attention may have neutral or even negatively reinforcing effects. The juvenile delinquent--characterized by his difficulty with adults in authority, by his academic deficiencies, and by his susceptibility to peer influences--may be one child for whom teacher attention is not a positive reinforcer.

The behavior modification literature concerning the treatment of juvenile delinquents has singularly focused on a token approach. The effectiveness of tokens depends upon the reinforcing value of the back-up or primary reinforcers which the S can obtain with the tokens that he earns. Burchard's Intensive Training Program at Murdoch Center, North Carolina, involved a resident population of 12 mildly retarded delinquent boys, aged 10 to 20 (Burchard, 1967, 1969; Lachenmeyer, 1969). The boys earned tokens for engaging in specific behaviors and used them to purchase meals, commissary items, recreational opportunities, and clothing. Burchard (1967) reported that tokens delivered contingent upon the amount of time which the resident spent in his desk and the number of assignments that

he completed were effective in maintaining school performance at a high level.

Phillips (1968) also reported the successful use of tokens to strengthen the academic behavior of delinquent boys. His point economy at Achievement Place in Lawrence, Kansas, involved three delinquents, aged 12 to 14, who exchanged the points which they earned for privileges natural to the residential setting (e.g., watching television, riding bikes, snacks). According to Phillips, the awarding of points contingent upon satisfactory homework completion raised that behavior to almost the 100% level. In another study with different Ss at Achievement Place (Bailey, Wolf, & Phillips, 1970), a system of home-based reinforcement increased their study behavior during math class at school. The boys were awarded points if they received satisfactory ratings on the behavior report cards which they brought home from school each day. Projects conducted by Cohen, Filipczak, and Bis (1967) and Meichenbaum, Bowers, and Ross (1968) further document the utility of a token approach in the remediation of inappropriate classroom behavior of institutionalized juvenile delinquents.

Unfortunately, token systems have been initiated at only a few residential centers for juvenile offenders. At many schools, the teacher may be unable to secure administrative approval or financial support for a small-scale token economy within her classroom. She may be unable to control the reinforcers in her students' environment to provide a sufficiently wide array of back-up reinforcers. She may

feel that a token approach depends for its success on artificial reinforcers. Since these reasons may prevent a teacher from establishing a token system, the manipulation of teacher attention would be a valuable alternative approach if teacher attention were in fact a positive reinforcer for juvenile delinquents.

Evidence for the effectiveness of teacher supplied social consequences in modifying undesirable classroom behavior has already accumulated for Ss of preschool and elementary school age and for Ss in laboratory schools, in regular public schools, and in special classroom settings. At the Laboratory Preschool of the University of Washington, Wolf, Baer, Harris, and their students have conducted a series of experiments to demonstrate the reinforcing effects of adult attention in bringing under experimental control the problem behaviors of kindergarten children. In their studies teacher attention was manipulated as the reinforcer, and positive reinforcement of the desired response event was paired with extinction of undesired response events. Using this procedure, they have successfully modified isolate behavior (Allen, Hart, Buell, Harris, & Wolf, 1964; Buell, Stoddard, Harris, & Baer, 1968), operant crying (Hart, Allen, Buell, Harris, & Wolf, 1964), regressed crawling (Harris, Johnston, Kelley, & Wolf, 1964), inattention (Allen, Henke, Harris, Baer, & Reynolds, 1967), and disruptive play behavior (Johnston, Kelley, Harris, & Wolf, 1966; Hart, Reynolds, Baer, Brawley, & Harris, 1968).

Other investigators have shown that teacher attention can be

a factor in the modification of the inappropriate classroom behavior of older, elementary school age children attending public schools. Thomas, Becker, and Armstrong (1968) demonstrated the role of different teacher responses in producing disruptive behavior in an initially well-behaved group of students. They reported that disruptive behavior rose from a baseline level of 8.7% of the intervals observed to 25.5% when the teacher used only contingent disapproval of disruptive behavior and did not praise appropriate behavior. When the teacher tripled her use of disapproving remarks, the disruptive behavior rose to 31.2%. Similarly, O'Leary and Becker (1968) found that a teacher's loud reprimands of disruptive behavior during a class rest period increased such inappropriate behavior to 53% of the period in comparison to its 32% level when the teacher attended to appropriate behavior and ignored inappropriate behavior. Their data also indicated that quiet reprimands were as effective as the use of praise for appropriate behavior and the disregarding of inappropriate behavior.

Madsen, Becker, and Thomas (1968) demonstrated that rules were ineffective in reducing inappropriate classroom behavior. During the rules contingency, the teacher informed the children what was expected of them, posted the rules on a bulletin board, and read the rules aloud several times each day. On the other hand, a combination of rules, ignoring of inappropriate behavior, and praise for appropriate behavior was highly successful in reducing the behavior problems of the target children observed by the Es. Other studies (Hall, Lund, &

Jackson, 1968; Wasik, Senn, Welch, & Cooper, 1969) likewise indicated favorable results when teacher supplied social consequences were manipulated systematically. In addition, researchers (e.g., Zimmerman & Zimmerman, 1962; Dyer, 1968; Thomas, Nielson, Kuypers, & Becker, 1968) have successfully applied this approach in special classrooms for children labeled as emotionally disturbed or learning disabled.

The present study is designed to assess the effects of teacher supplied social consequences on the classroom behavior of a group of delinquent adolescent girls. It is unique for two reasons. First, the literature contains only one report (McAllister, Stachowiak, Baer, & Conderman, 1969) on the use of teacher attention to modify the inappropriate classroom behavior of adolescent Ss. Second, the literature contains no report concerning the effects of social consequences on the behavior of juvenile offenders. Specifically, this research focuses on one problem:

> Is a combination of operant conditioning and operant extinction an effective strategy for strengthening the appropriate classroom behavior and for weakening the inappropriate classroom behavior of a S group of institutionalized delinquent girls? If appropriate behavior is followed by teacher approval and if teacher attention (approval and disapproval) is withheld from inappropriate behavior, will the rate of appropriate behavior increase and the rate of inappropriate behavior decrease?

Although the above problem is central to this research, the design of the study also enables an additional area of interest to be explored;

that is: In a S group of institutionalized delinquent girls, is appropriate classroom behavior strengthened and inappropriate classroom behavior weakened by the introduction of a set of rules that specify what behavior the teacher considers desirable?

If the first questions can be answered affirmatively, then the generality of a social reinforcement approach to the modification of classroom behavior will receive further documentation. Teachers who control the problem behaviors of institutionalized juvenile delinquents will have some evidence that their attention, applied contingently, can be an effective reinforcer--an effective reinforcer which is widely accepted, absolutely free, and always available.

Chapter 2

METHOD

This study focused on the behavior of an entire class of students rather than on the behavior of one or two students within the class, and, thus, the class was being treated as a single organism. The basic design was a multiple baseline technique across behaviors (Baer, Wolf, & Risley, 1968; Hall, Cristler, Cranston, & Tucker, 1970). This design involves measuring two or more behaviors exhibited by an S or group of Ss to establish baselines for each of them. The experimental condition is applied to one of these behaviors. When a change in behavior occurs, the same experimental condition is then applied to a second behavior while it is still being applied to the first behavior. The experimental condition can be successively applied to any number of behaviors, provided that their baseline rates have been established prior to any manipulation. If the greatest change occurs in each of the behaviors when the experimental condition is applied and not at any other point in the experiment, the hypothesis that the experimental condition is responsible for the observed behavioral change receives support.

Students. The Ss were members of a social studies class at Bon Air School. Bon Air is a State residential facility for adolescent girls whom the Court has committed to the care of the Virginia

Department of Welfare and Institutions. Girls are sent to Bon Air because the Court has ruled that their behavior is beyond parental control and management within the community. The ten students listed on the class roll at the beginning of the study ranged in age from 15 years to 18 years; five were white and five were black. The size of the class fluctuated daily from four to ten students since girls were occasionally excused to participate in other activities, girls were transferred by the principal in and out of the class, and girls from other groups joined the class when their teacher was absent or when they had permission from their regular teachers to visit the class. The class was scheduled to meet each weekday from 3:15 P.M. to 3:55 P.M. However, during the period of the study, the class met on the average of 4 days per week due to holidays, the teacher's absence, staff meetings, and extracurricular activities such as dances and movies.

Teacher. The teacher was a 24 year old female who held a Bachelor's degree in Political Science and had taught at Bon Air for $1\frac{1}{2}$ years. She volunteered to participate in the study, expressing interest in trying any approach which the E might propose. The teacher had attended a six-week summer program in behavior modification techniques for classroom management. The program was sponsored by the University of Virginia and was taught with the use of a programmed text. Participants in the program were not required to conduct any behavior modification projects, and the teacher stated that she had never systematically applied the techniques in her classroom.

Because the experimental class met during the last period of the

school day, the teacher had time after each session to talk with the E. Also, because the teacher's free planning period immediately preceded the experimental class' period, the E could talk with the teacher before each session.

The E did not attempt to hold the variables of subject matter and class assignments constant during the study; the teacher was free to use any type of instructional approach or educational material. Typically, the teacher conducted the class by calling the roll and then giving the girls a written assignment for the period. The written assignments involved completing exercises in workbooks on money management, writing themes with the use of encyclopedias, and filling in locations on maps. The teacher answered questions concerning the assignments on an individual basis, rarely making an explanation to the entire class. Once during baseline and each of the experimental conditions, she showed a film or slides and asked the class questions after the presentation.

The E also did not attempt to control the variable of class seating arrangement. The teacher permitted the girls to sit in any desks that they chose, and, hence, the seating pattern varied from session to session.

Student behavior. The E observed the class for four periods to determine what types of inappropriate behavior were occurring and with what frequency they were occurring. The E asked the teacher what behaviors she would like to strengthen in her students and what behaviors she would like to eliminate from their repertoires. The

student behaviors selected for elimination were inappropriate interrupting and inappropriate talking; the student behaviors selected for strengthening were appropriate interrupting and not engaging in inappropriate talking.

Inappropriate interrupting was defined as not raising the hand and waiting to be recognized by the teacher before speaking or coming to her. The teacher recognized a student by saying the student's name. Inappropriate interrupting included speaking to the group during class discussions without first raising the hand and waiting to be recognized by the teacher. Calling out answers without raising the hand and without waiting to be recognized by the teacher when the teacher had asked the class a question was also considered inappropriate interrupting. Inappropriate interrupting did not include comments made by a student to the teacher after the student had engaged the teacher in conversation and the teacher was attending to her. It did not include comments made to the teacher by a student working a problem at the board while the teacher watched. Walking to the teacher's desk to hand in an assignment was not recorded as inappropriate interrupting provided that the student did not talk to the teacher. Appropriate interrupting referred to raising the hand and waiting to be recognized by the teacher before speaking or coming to her. Raising the hand and waiting to be recognized by the teacher during class discussions and when the teacher had asked the class a question were considered instances of appropriate interrupting.

Inappropriate talking was defined as any conversation between

two or more girls who did not have the teacher's permission to talk. This category of response events included making comments or calling out remarks when they were directed to the group rather than to a specific student. Inappropriate talking did not include laughing, giggling, or humming. Not engaging in inappropriate talking referred to not engaging in the behavior defined above. A student who was not engaging in inappropriate talking might not have been speaking, might have been talking to the teacher or to another student with the teacher's permission, or might have been laughing, giggling, or humming. Thus, not engaging in inappropriate talking did not necessarily mean that the student was quiet or silent.

Teacher behavior. Attending and ignoring were the two aspects of teacher behavior which were emphasized in this study. Teacher attention was divided into the two categories of approval and disapproval.

Teacher approval included (a) praise - verbal responses commending a student's behavior, (b) facial attention - smiling or nodding at a student, (c) contact - touching a student on her shoulder or holding her arm in a positive or gentle manner, and (d) listening - attending to a student's questions or comments.

Teacher disapproval involved (a) criticism - reprimands in the form of scolding, admonishing, or yelling at a student, (b) threats - consequences that the teacher threatens to use if a student does not change her behavior, (c) facial attention - frowns directed toward a student, and (d) restraint - firmly pulling or holding a student.

Teacher ignoring referred to withholding attention from a student by disregarding her behavior.

Recording. The E observed and recorded behavior during each class period. Student and teacher behaviors were recorded during every condition of the study. The occurrence of (a) appropriate interrupting, (b) inappropriate interrupting, (c) inappropriate talking, (d) teacher approval for appropriate interrupting, and (e) teacher approval for not engaging in inappropriate talking was recorded during every 20 sec. interval of the class period. Behavior record forms (see Appendix) contained five rows of boxes with every third column of boxes numbered to indicate the start of a new minute; one of these rows was used to record each of the five behaviors. Regardless of the number of times that a behavior occurred during a 20 sec. interval, the box for that interval contained only one check. Thus, a check indicated that the behavior occurred during the interval but did not indicate the frequency of the behavior's occurrence within the interval. A daily measure of each of these five behaviors consisted of the percentage of intervals in which the behavior occurred.

The occurrence of (a) teacher ignoring of inappropriate interrupting and (b) teacher ignoring of inappropriate talking was also recorded during every 20 sec. interval of the class period. The behavior record forms contained two additional rows of boxes for the recording of these behaviors. The box for an interval was checked only if the teacher ignored inappropriate behavior during the

entire interval. If the teacher attended to inappropriate behavior at least once during an interval, then that interval did not receive a check. A daily measure of teacher ignoring of inappropriate interrupting consisted of the number of intervals in which the teacher ignored inappropriate interrupting divided by the total number of intervals in which inappropriate interrupting occurred; this quotient was multiplied by 100 to convert it to a percentage. Likewise, a daily measure of teacher ignoring of inappropriate talking consisted of the number of intervals in which the teacher ignored inappropriate talking divided by the total number of intervals in which inappropriate talking occurred; this quotient was multiplied by 100 to convert it to a percentage.

Reliability of the E's recording was assessed by using a second observer who recorded for 3 sessions during baseline and for 2 sessions during each of the experimental conditions. Separate reliability indices for the seven recorded behaviors were computed by dividing the number of intervals in which the observers agreed that the behavior did or did not occur by the total number of intervals observed for that session. This quotient was multiplied by 100 to convert it to a percentage.

The four conditions of the study were baseline; Experimental Condition I - rules; Experimental Condition II - rules, approval for appropriate interrupting, ignoring of inappropriate interrupting; and Experimental Condition III - rules, approval for appropriate interrupting, ignoring of inappropriate interrupting, approval for not

engaging in inappropriate talking, ignoring of inappropriate talking. As specified in the definition of a multiple baseline design, Experimental Conditions II and III constituted the successive application of the same treatment variable (teacher approval and ignoring) to two different behaviors whose baseline rates were established prior to any experimental intervention.

It was decided that each experimental condition would be in effect for 5 sessions before the introduction of the next experimental condition. This decision is consistent with O'Leary and Drabman's (1971) recommendation that the duration of experimental conditions should be predetermined. The selection of 5 sessions was based on the fact that the literature on social reinforcement with children (e.g., Harris Wolf, & Baer, 1964) indicates that a behavioral change usually occurs immediately after the experimental condition has been introduced if a change occurs at all.

Baseline. During baseline the teacher was instructed to conduct the class as usual.

Experimental Condition I. After baseline measures of student and teacher behavior had been collected, the first experimental condition was introduced. On a bulletin board in front of the class, the teacher posted three rules relating to appropriate interrupting and not engaging in inappropriate talking. During the first 2 sessions of this condition, the teacher and the students discussed the rules and read them aloud. Thereafter, a student read the rules aloud at the beginning of each session. The teacher reminded the class of the rules during sessions

on occasions when the girls were behaving appropriately. The teacher usually reminded the class of the rules two or three times per session.

The rules consisted of the following statements:

(a) Be quiet after the bell has rung.

(b) Work individually and quietly. Only talk to another girl when the teacher has given permission.

(c) Raise your hand and wait to be called on by name when you want to ask the teacher a question or come to her desk.

Experimental Condition II. After Experimental Condition I had been in effect for 5 sessions, the second experimental condition was introduced. The teacher received written copies of the behavior definitions of appropriate and inappropriate interrupting and the behavior definitions of teacher approval, disapproval, and ignoring. The E discussed the definitions with the teacher, providing her with specific examples of the behaviors as they occurred in her classroom and with specific examples of the comments which she might use to approve of appropriate interrupting. The teacher was instructed to approve of appropriate interrupting and to ignore inappropriate interrupting. A student continued to read the rules aloud at the beginning of each session. The teacher continued to remind the class of the rules during sessions on occasions when the girls were behaving appropriately. The teacher usually reminded the class of the rules two or three times per session.

To help the teacher to learn to approve of appropriate inter-

rupting, the E provided her with immediate feedback by smiling at her whenever she correctly approved of appropriate interrupting. The E discontinued this feedback when the data indicated that the teacher had mastered the technique of approval for appropriate interrupting. Before each session, the E reported to the teacher the preceding session's measures (in percentages) of approval for appropriate interrupting, ignoring of inappropriate interrupting, appropriate interrupting, and inappropriate interrupting. After each session, the E discussed with the teacher her behavior during that session, praising instances in which she correctly approved and pointing out opportunities for approval which she had missed.

Experimental Condition III. After Experimental Condition II had been in effect for 5 sessions, the third experimental condition was introduced. The contingencies pertaining to interrupting remained in effect. A student continued to read the rules aloud at the beginning of each session. The teacher continued to remind the class of the rules during sessions on occasions when the girls were behaving appropriately. The teacher usually reminded the class of the rules two or three times per session. The teacher was now provided with written behavior definitions of not engaging in inappropriate talking and inappropriate talking. The E discussed the new definitions with the teacher, again providing her with specific examples of the behaviors as they occurred in her classroom and with specific examples of the comments which she might use to approve of not engaging in inappropriate talking. The teacher was instructed to approve of not engaging in

inappropriate talking and to ignore inappropriate talking.

During the first part of Experimental Condition III, the E gave the teacher immediate feedback by smiling at her whenever she correctly approved of not engaging in inappropriate talking. This feedback was discontinued when the data indicated that the teacher had mastered the technique of approval for not engaging in inappropriate talking. Before each session, the E continued to inform the teacher of the preceding session's measures of approval for appropriate interrupting, ignoring of inappropriate interrupting, appropriate interrupting, and inappropriate interrupting. In addition, the E now informed the teacher of the preceding session's measures of approval for not engaging in inappropriate talking, ignoring of inappropriate talking, and inappropriate talking. After each session, the E discussed with the teacher her behavior during that session.

Experimental Condition III was in effect for 4 sessions. The study was terminated at this point because the time period in which the class met was indefinitely rescheduled for staff meetings and the students were dismissed from school during the meetings.

Chapter 3

RESULTS

The greatest increase in appropriate interrupting and the greatest decrease in inappropriate interrupting occurred in Experimental Condition II when the experimental treatment of teacher approval and ignoring was applied to them. Similarly, the greatest increase in not engaging in inappropriate talking and the greatest decrease in inappropriate talking occurred in Experimental Condition III when the experimental treatment of teacher approval and ignoring was applied to them. Before the data on student behavior are presented in detail, the changes in teacher behavior will be discussed. The systematic manipulation of teacher attention constituted the main treatment variable, and, therefore, it is important that a change in teacher attending behavior be demonstrated.

Teacher behavior. Figures 1 and 2 indicate the daily measures of the four teacher behaviors during each condition. Table 1 contains the average measures of the teacher behaviors for each condition. (The reader is reminded that the approval behaviors were calculated as the percentage of intervals in which approval occurred and that the ignoring behaviors were calculated as the percentage of inappropriate behavior which the teacher ignored. The calculation procedures were described on p. 13 and p. 14.)

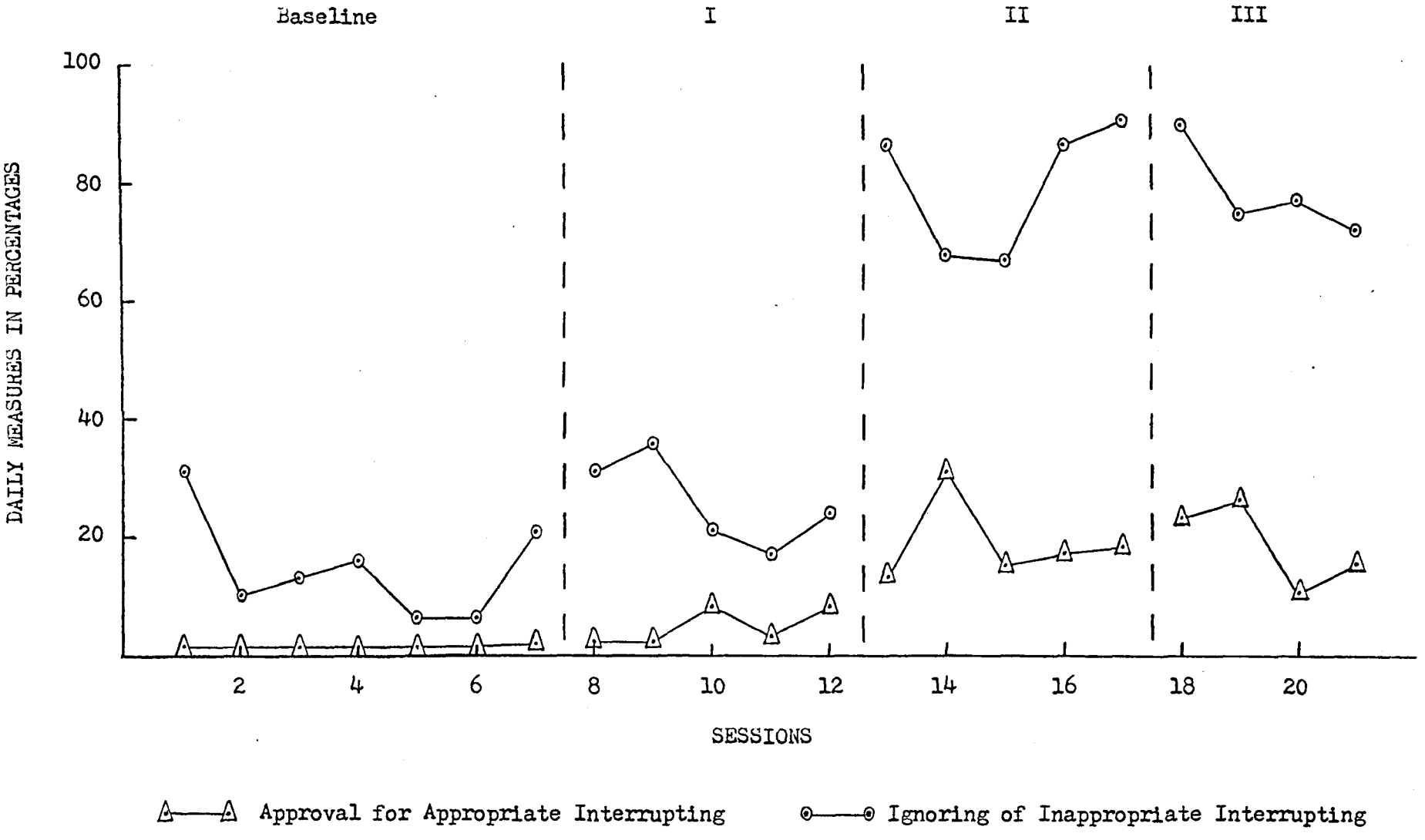

Figure 1. Daily measures of teacher approval for appropriate interrupting and teacher ignoring of inappropriate interrupting during each condition of the study. (I - rules; II - rules, approval for appropriate interrupting, ignoring of inappropriate interrupting; III - rules, approval for appropriate interrupting, ignoring of inappropriate interrupting, approval for not engaging in inappropriate talking, ignoring of inappropriate talking)

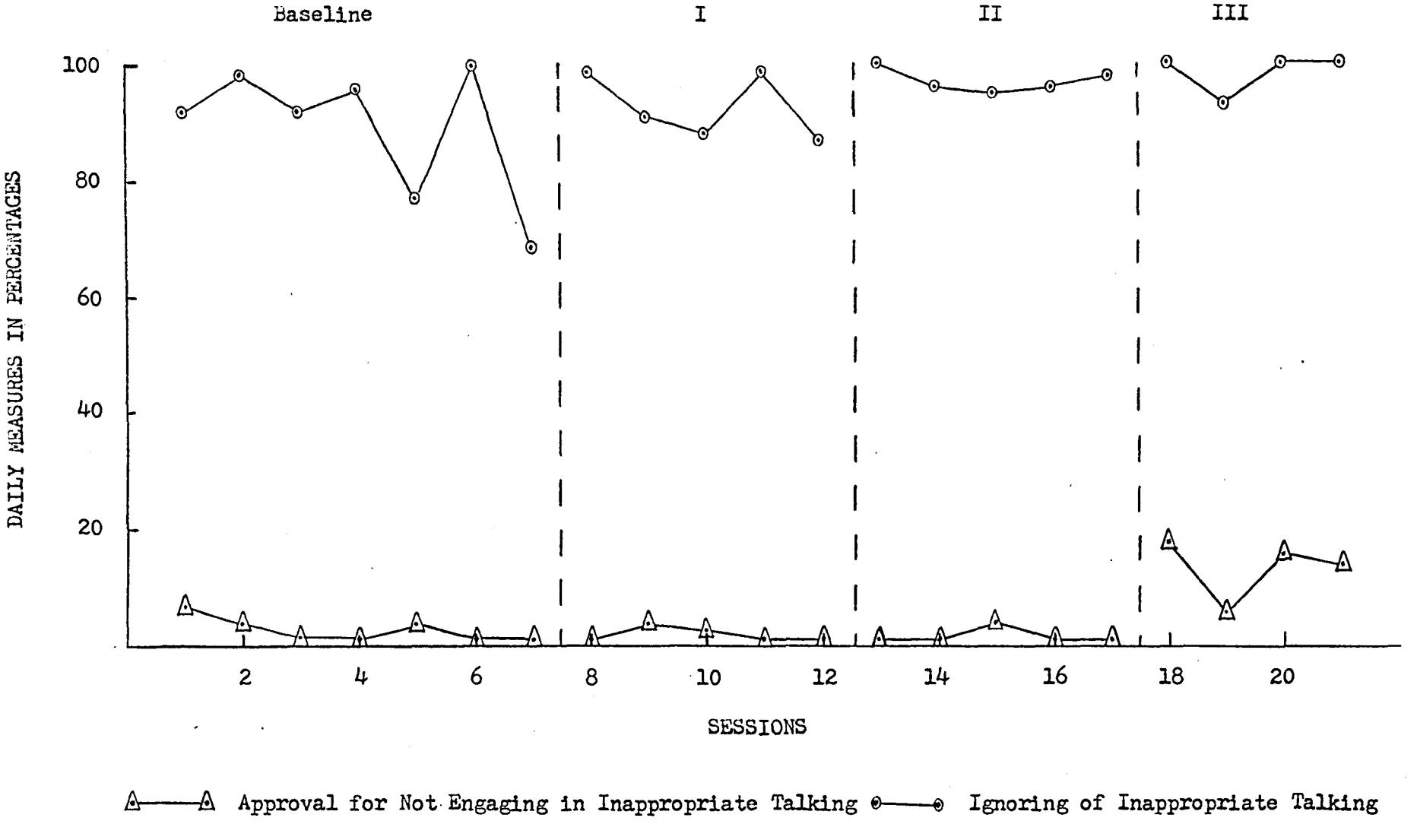

Figure 2. Daily measures of teacher approval for not engaging in inappropriate talking and teacher ignoring of inappropriate talking during each condition of the study. (I - rules; II - rules, approval for appropriate interrupting, ignoring of inappropriate interrupting; III - rules, approval for appropriate interrupting, ignoring of inappropriate interrupting, approval for not engaging in inappropriate talking, ignoring of inappropriate talking)

Table 1

Average measures of teacher behaviors during each condition of the study.

Behaviors	Conditions			
	Base-line	I	II	III
Approval for Appropriate Interrupting	<1%	5%	20%	20%
Ignoring Inappropriate Interrupting	16%	27%	81%	80%
Approval for Not Engaging in Inappropriate Talking	2%	<1%	<1%	13%
Ignoring Inappropriate Talking	89%	93%	97%	98%

(The symbol < means less than.)

These results show that the teacher did learn to approve of appropriate behavior and to ignore inappropriate behavior. Because the teacher quickly mastered the technique of approval for appropriate behavior, feedback in Experimental Conditions II and III was discontinued after only one session.

In Experimental Condition II, when the teacher was instructed to approve of appropriate interrupting and to ignore inappropriate interrupting, approval for appropriate interrupting and ignoring of inappropriate interrupting rose to levels which were high in comparison to their levels during baseline and the first experimental condition. These levels were maintained in the next condition. The data also indicate that the teacher, without instructions, increased the amount of approval for appropriate interrupting and ignoring of inappropriate interrupting in Experimental Condition I (rules). This change in her behavior was small in comparison to the change during Experimental Condition II.

Since teacher ignoring of inappropriate talking was at a high level during baseline and the first two experimental conditions, instructing the teacher to ignore inappropriate talking in Experimental Condition III only resulted in a small increase in this behavior. Instructing the teacher to approve of not engaging in inappropriate talking resulted in an increase in approval for not engaging in inappropriate talking. Prior to Experimental Condition III, approval for not engaging in inappropriate talking had averaged less than 2% per session.

Student behavior. Figure 3 shows the percentage of intervals in which appropriate and inappropriate interrupting occurred during each of the conditions. Table 2 contains the average measures of the two behaviors for each condition. The results indicate that the greatest increase in appropriate interrupting and the greatest decrease in inappropriate interrupting occurred in Experimental Condition II when the teacher increased the amount of approval for appropriate interrupting and ignoring of inappropriate interrupting. Inappropriate interrupting continued to decrease during the next condition when the same contingencies pertaining to interrupting were in effect. A smaller change in appropriate and inappropriate interrupting took place during the first experimental condition (rules).

Figure 4 shows the percentage of intervals in which not engaging in inappropriate talking and inappropriate talking occurred during each of the conditions. Table 2 shows the average measures of the two behaviors for each condition. Although not engaging in inappropriate talking was not one of the seven recorded behaviors, a measure of it was obtained by subtracting the measure of inappropriate talking from 100%. This measure of not engaging in inappropriate talking reflects the percentage of intervals in which no inappropriate talking occurred during the entire 20 sec. period.

Table 2 indicates that the average measures of not engaging in inappropriate talking increased and the average measures of inappropriate talking decreased during each experimental condition. The daily measures of not engaging in inappropriate talking and inappropriate

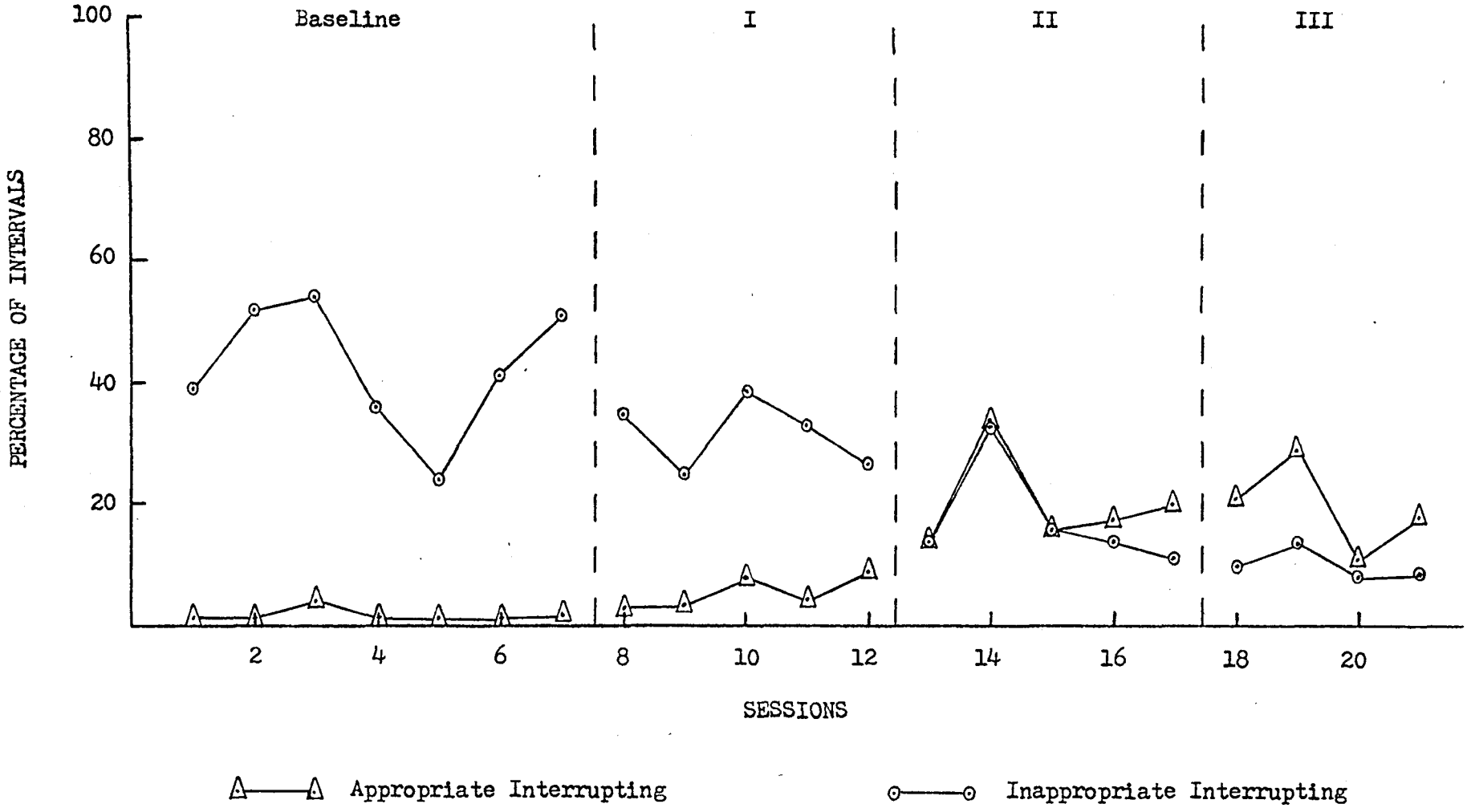

Figure 3. Daily measures of appropriate interrupting and inappropriate interrupting during each condition of the study. (I - rules; II - rules, approval for appropriate interrupting, ignoring of inappropriate interrupting; III - rules, approval for appropriate interrupting, ignoring of inappropriate interrupting, approval for not engaging in inappropriate talking, ignoring of inappropriate talking)

Table 2

Average measures of student behaviors during each condition of the study.

Behaviors	Conditions			
	Base-line	I	II	III
Appropriate Interrupting	1%	5%	20%	20%
Inappropriate Interrupting	42%	32%	20%	10%
Not Engaging in Inappropriate Talking	15%	37%	51%	76%
Inappropriate Talking	85%	63%	49%	24%

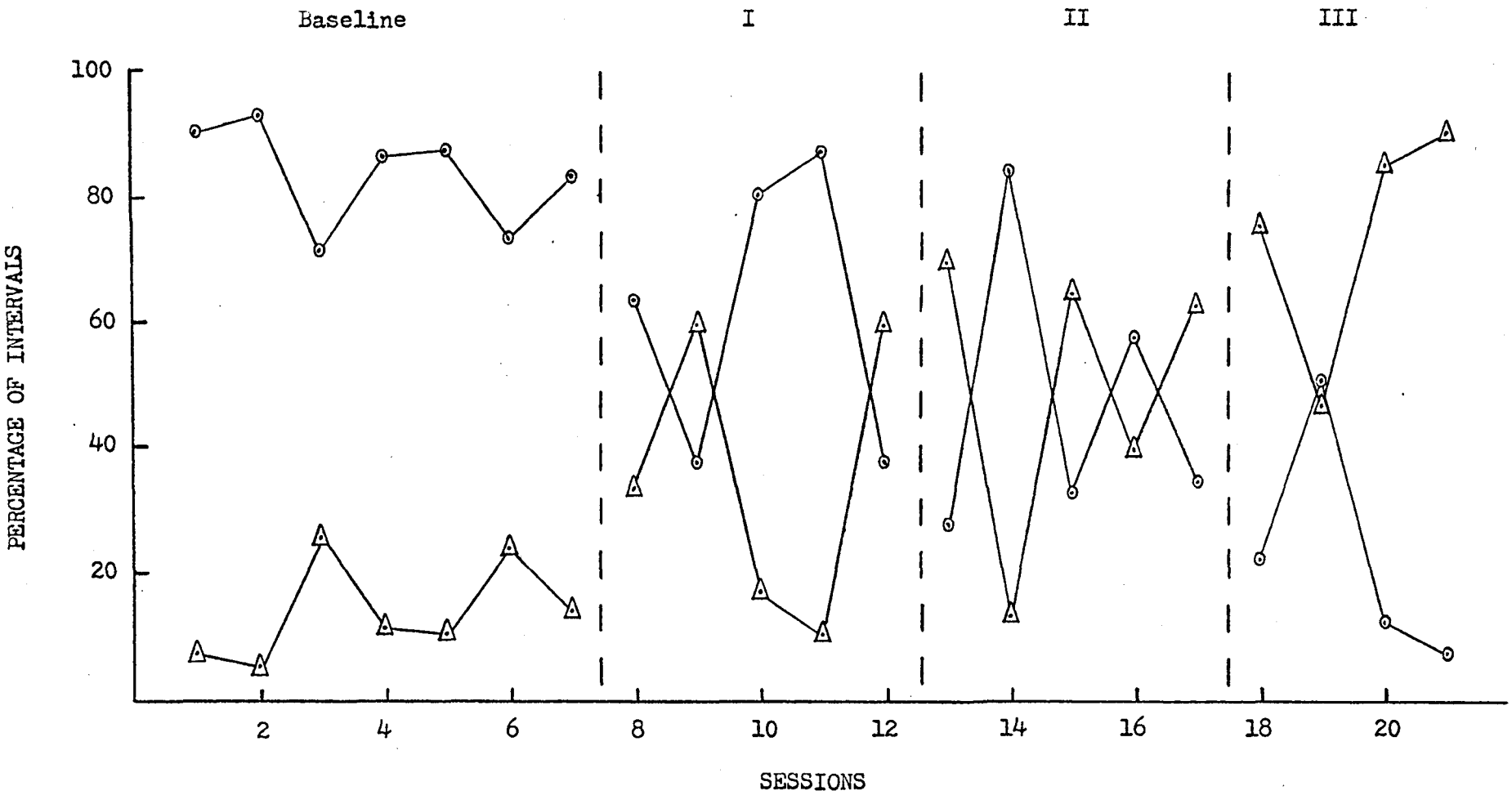

Figure 4. Daily measures of not engaging in inappropriate talking and inappropriate talking during each condition of the study. (I - rules; II - rules, approval for appropriate interrupting, ignoring of inappropriate interrupting; III - rules, approval for appropriate interrupting, ignoring of inappropriate interrupting, approval for not engaging in inappropriate talking, ignoring of inappropriate talking)

talking were quite variable during the first and second experimental conditions. During these conditions, not engaging in inappropriate talking reached daily levels higher than any level observed during baseline; likewise, inappropriate talking declined to daily levels lower than any level observed during baseline. In Experimental Condition III, when the teacher increased the amount of approval for not engaging in inappropriate talking and maintained her high level of ignoring of inappropriate talking, the greatest increase in not engaging in inappropriate talking and the greatest decrease in inappropriate talking occurred. The highest daily measure of inappropriate talking during Experimental Condition III was recorded in the session in which teacher approval for not engaging in inappropriate talking and teacher ignoring of inappropriate talking were at the lowest daily levels of the condition.

The size of the class ranged from four to ten students per session. During baseline, class attendance averaged eight girls per session; and, during each of the experimental conditions, it averaged six girls per session. Only two students who were in the class during baseline were still in the class at the conclusion of the study.

Observer reliability. Table 3 summarizes the results of the nine inter-observer reliability checks conducted during the study. The range of the reliability indices for the recorded behaviors in all conditions of the study was 84% to 100%. The average of these reliability indices was 97%.

Table 3

Average reliability indices for the recorded behaviors during each condition of the study.

Behaviors	Conditions				Average
	Base-line	I	II	III	
Approval for Appropriate Interrupting	100%	99%	97%	100%	99%
Ignoring Inappropriate Interrupting	96%	99%	98%	96%	97%
Approval for Not Engaging in Inappropriate Talking	100%	100%	99%	98%	99%
Ignoring Inappropriate Talking	92%	94%	93%	98%	94%
Appropriate Interrupting	99%	99%	97%	99%	98%
Inappropriate Interrupting	93%	97%	98%	97%	96%
Inappropriate Talking	95%	96%	94%	98%	96%

Chapter 4

DISCUSSION

Effects of approval and ignoring. The purpose of this study was to determine whether or not a combination of teacher approval for appropriate behavior and teacher ignoring of inappropriate behavior is an effective strategy for the modification of classroom behavior of institutionalized delinquent girls. This strategy was employed in a classroom where a set of rules specifying appropriate student behavior had been introduced. Thus, the experimental treatment of teacher approval and ignoring is being evaluated in terms of its effectiveness in such a setting. Since appropriate interrupting increased maximally and inappropriate interrupting decreased maximally when the experimental treatment was applied to them and since not engaging in inappropriate talking increased maximally and inappropriate talking decreased maximally when the same experimental treatment was later applied to them, the hypothesis that the experimental treatment was responsible for the behavioral change received support. Through the multiple baseline procedure, experimental control of the student behaviors was demonstrated. A strategy of teacher approval for appropriate behavior and teacher ignoring of inappropriate behavior appears to have been an effective approach to the remediation of classroom behavior problems of institutionalized juvenile delinquents.

The results indicate that teacher attention functioned as a positive reinforcer for this S group of delinquent girls. When teacher approval was made contingent upon appropriate interrupting and not engaging in inappropriate talking, both behaviors increased in frequency. When teacher attention was withheld from inappropriate interrupting and inappropriate talking, both behaviors decreased in frequency. Thus, teacher attention satisfied the empirical requirements for a positive reinforcer.

Amount of approval. It might be speculated that a greater increase in appropriate behavior and a greater decrease in inappropriate behavior would have occurred if the amount of teacher approval for appropriate behavior had been larger than the amount reported in the results. Several considerations support the position that the teacher's level of approval for appropriate interrupting in Experimental Conditions II and III and her level of approval for not engaging in inappropriate talking in Experimental Condition III were sufficiently high. Since the size of the changes in student behavior satisfied the E and the teacher, higher levels of teacher approval for appropriate behavior were unnecessary from the practical standpoint of how much the E and the teacher wanted student behavior to be modified. If the size of the changes in student behavior had not satisfied the E and the teacher, the E would have instructed the teacher to increase the amount of approval.

Teacher approval for appropriate interrupting averaged 20% per session in both Experimental Conditions II and III when the

teacher was instructed to approve of appropriate interrupting. During Experimental Conditions II and III, appropriate interrupting also averaged 20% per session. Figures 1 and 3 show that the graph of teacher approval for appropriate interrupting and the graph of appropriate interrupting were almost identical in form. Thus, the teacher was approving of almost every occurrence of appropriate interrupting; in all conditions of the study, the percentage of appropriate interrupting of which the teacher approved was close to 100%. The teacher's amount of approval for appropriate interrupting could have been larger only if appropriate interrupting had occurred more frequently. Since appropriate interrupting was defined as raising the hand and waiting to be recognized by the teacher before speaking or coming to her, the Ss would not be expected to engage in such a behavior for a large part of each session. The students would not be expected to constantly need the teacher's answer to a question or to constantly want to make comments to the teacher. Twenty-percent of the observation intervals per session would seem to be a reasonable amount of appropriate interrupting.

The E noted that the inappropriate interrupting which still occurred in Experimental Conditions II and III was, for the most part, "slips" that the students immediately corrected by raising their hands and waiting to be recognized by the teacher. Hence, a further reduction in inappropriate interrupting would not have resulted in an increase in appropriate interrupting since the students

were changing their inappropriate interrupting to appropriate interrupting which the E was already recording.

Teacher approval for not engaging in inappropriate talking averaged 13% per session during Experimental Condition III when the teacher was instructed to approve of not engaging in inappropriate talking. During Experimental Condition III, not engaging in inappropriate talking averaged 76% per session. This difference between the average measure of teacher approval for not engaging in inappropriate talking and the average measure of not engaging in inappropriate talking might seem to suggest that the teacher was not providing enough approval for not engaging in inappropriate talking.

In answer to this question, it must be pointed out that the definition of not engaging in inappropriate talking included a broader range of behaviors than the definition of appropriate interrupting. As the observational data indicate, the Ss were more likely to be not engaging in inappropriate talking than to be interrupting appropriately. The teacher would have been unable to approve of every occurrence of not engaging in inappropriate talking even though she was able to approve of almost every occurrence of the less frequent behavior of appropriate interrupting.

Most of the inappropriate talking that continued to occur in Experimental Condition III took place during the first seven minutes of the period before the teacher had made the assignment. The teacher did not feel that all inappropriate talking had to

be eliminated during these seven minutes. In Experimental Condition III, the teacher would have given the students permission to talk during the short time before the assignment was made. However, if the teacher had given such permission during the last experimental condition, a misleading increase in not engaging in inappropriate talking would have occurred. Not engaging in inappropriate talking would have been recorded more frequently since the girls would have been talking with the teacher's permission, but this increase would not have been due to the experimental treatment. The increase would have been due solely to the teacher's change in policy. Therefore, the E continued to record inappropriate talking during the first seven minutes of the period, but neither the E nor the teacher were concerned with eliminating it. The E judged that the inappropriate talking at the beginning of the session changed from loud talk during baseline to whispering during Experimental Condition III--another reason why the teacher was not concerned with eliminating it.

If the teacher had more frequently approved of not engaging in inappropriate talking, undesirable effects could have resulted. A higher level of approval for not engaging in inappropriate talking might have disrupted the Ss' study behavior since the teacher would have been more frequently approaching them and talking to them as she approved of their not engaging in inappropriate talking. Also, if approval had been given too frequently, it might have functioned as an aversive stimulus. The E observed that when the teacher approved

of appropriate interrupting, the approval was in the form of listening to the students' questions and providing them with information. However, the E observed that praise comments and touching the girls on their shoulders were the types of approval that usually followed not engaging in inappropriate talking. Having observed the girls' reactions to the latter types of approval (praise comments and touching), the E felt that a large amount of such approval might have been aversive to the Ss; it might have been experienced by the girls as "phony" and "patronizing." In the amount given in this study, teacher approval did function as a positive reinforcer; and, the desired change in student behavior was produced. It can only be speculated whether or not teacher approval in a larger amount would also have been an effective reinforcer with this S group of delinquent girls.

Finally, the amount of teacher approval for appropriate behavior might appear small because the measures of ignoring of inappropriate behavior seem large in comparison. However, the daily measures of teacher approval and teacher ignoring are not comparable since they were calculated according to different procedures. The measure of teacher approval reflects the percentage of observation intervals in which the teacher approved of appropriate behavior. The measure of teacher ignoring reflects the percentage of inappropriate behavior which the teacher ignored. Two different calculation procedures were used in order that the resulting daily measures of approval and ignoring would accurately

mirror the changes in teacher behavior that were occurring.

Effects of rules. Another purpose of this study was to assess the effects of the introduction of classroom rules specifying what behaviors the teacher considered desirable. Although a decrease in inappropriate talking occurred when the rules were introduced, the change cannot be clearly attributed to the rules since a systematic return to baseline followed by reinstatement of the rules (reversal procedure) was not conducted to demonstrate control of talking. The possibility that the rules were responsible for the behavioral change should be experimentally investigated, for other researchers (Madsen et al., 1968; O'Leary, Becker, Evans, & Saudargas, 1961) have reported the ineffectiveness of rules. Since Madsen et al. and O'Leary et al. used Ss of preschool and primary school age, rules might prove to be more effective in the modification of older children's behavior. The manner in which the teacher presents the rules, discusses them with the students, and reminds the students of them are among the variables that might be responsible for the difference between the results of this study and the results of other studies.

During the rules condition, a small increase in appropriate interrupting and a decrease in inappropriate interrupting also occurred. Interpretation of this change is complicated by the fact that the teacher, without instructions, increased her amount of approval for appropriate interrupting and ignoring of inappropriate interrupting at the same time as the rules were introduced.

This alteration of the teacher's behavior, not the rules, might have been responsible for the change in interrupting.

Stimulus generalization. An increase in not engaging in inappropriate talking and a decrease in inappropriate talking occurred in Experimental Condition II before the experimental treatment of teacher approval and ignoring was applied to them. One explanation of this change in talking might be in terms of stimulus generalization. Appropriate classroom behaviors which the Ss emitted in other classes at Bon Air or had emitted in public school might have generalized to the experimental classroom setting. The generalization could have occurred because the experimental classroom setting began to resemble classroom situations in which the girls had previously learned and emitted appropriate classroom behavior. In Experimental Conditions I and II, the teacher introduced and emphasized a set of rules. In Experimental Condition II, she noticeably enforced one of these rules by ignoring any girl who did not raise her hand correctly. In such changed stimulus conditions, the Ss might have begun to emit appropriate classroom behaviors that they already possessed in their repertoires. One of the appropriate behaviors which might have generalized from other classes to the experimental class could have been not engaging in inappropriate talking.

Teacher proximity. Although the results seem to indicate that teacher approval and ignoring were responsible for the change in talking during the third experimental condition, an alternative explanation exists. During baseline and Experimental Conditions I

and II, the E observed that the teacher remained seated at her desk for most of the period. However, during Experimental Condition III, the E observed that the teacher was usually on her feet, moving around the room to approve of not engaging in inappropriate talking. She spent most of the period standing near the students or looking over their shoulders as they worked. The proximity of the teacher to the students might have acted as a discriminative stimulus for the girls not to engage in inappropriate talking. The teacher's closeness to the students might have been a cue that inappropriate talking was likely to be punished and not engaging in inappropriate talking was likely to be reinforced. Broden, Bruce, Mitchell, Carter, and Hall (1970) suggested a similar interpretation of the results of an experiment in which teacher attention was used to increase the attending behavior of students seated at adjacent desks.

The fact that a positive change in interrupting occurred without an apparent increase in the teacher's proximity to the students cannot be definitely interpreted as an argument against the above explanation of the change in talking. As mentioned earlier in this chapter, the type of approval that followed appropriate interrupting and was withheld from inappropriate interrupting was qualitatively different from the types of teacher approval that followed not engaging in inappropriate talking and was withheld from inappropriate talking. Although the data do not reflect such a difference, the E observed that praise comments were used to approve of not engaging in inappropriate talking--comments such as "I like the way you are

working quietly" or "Thanks for being so quiet while I made the assignment." Touching the girls on their shoulders was also used to approve of not engaging in inappropriate talking. With interrupting, the E observed that teacher approval consisted of listening to the student's question and providing the student with information that the student had solicited by raising her hand. The latter type of approval used with interrupting might be a more effective reinforcer than praise comments. In combination with ignoring, the latter type of approval might be responsible for the change in interrupting even if teacher proximity were responsible for the change in talking.

Another consideration suggests that the experimental treatment of teacher approval and ignoring did not produce the change in talking. Since the teacher's level of ignoring inappropriate talking was high throughout the study, application of the experimental treatment to talking in Experimental Condition III was not as great a change in teacher behavior as the change in Experimental Condition II when the experimental treatment was applied to interrupting. The data indicate that the only sizable change in teacher behavior during Experimental Condition III was an increase in approval for not engaging in inappropriate talking. In combination with ignoring, this approval could have been sufficiently reinforcing to reduce inappropriate talking. However, the effectiveness of approval might have been enhanced by the factor of teacher proximity in the third experimental condition.

Class composition. A final alternative explanation of the behavioral

changes in interrupting and talking might be in terms of student composition of the class. Since the number and the names of the students varied, it might be concluded that girls who engaged in inappropriate classroom behavior were transferred from the class and replaced by girls who displayed desirable behavior. Because data on individual Ss were not collected, this argument cannot be conclusively refuted. However, both the E and the teacher felt that the variability in class composition did not produce a positive bias. Girls who were regarded as behavior problems by the staff at Bon Air were transferred out of the class, but other girls regarded as behavior problems were added to the class.

Another consideration argues against an interpretation of the behavioral changes in terms of class composition. Since much variability in the composition of the class existed, each S was exposed to the rules and the experimental treatment for a shorter period of time than she would have been exposed if the class composition had been constant. The fact that appropriate behavior increased and inappropriate behavior decreased with such a brief exposure of the Ss to the experimental class suggests the speed and effectiveness of the approach.

Qualitative behavioral changes. Although the data indicate a quantitative change in appropriate and inappropriate student behavior, the data cannot reflect the dramatic qualitative change in the Ss' behavior. At the beginning of the study, the teacher regarded the experimental class as her worst-behaved group, especially in terms

of loud talking, calling out the teacher's name, and failure to complete assignments. Both the E and the second observer were amazed at the "confusion" and "uproar" in the class. With each change in conditions, the class grew progressively like a regular high school class of well-behaved students. Inappropriate talking became whispering. The girls still laughed at an amusing incident, but they quickly returned to their work. In the E's and the teacher's opinions, the change in appropriate and inappropriate classroom behavior was accompanied by an increase in study behavior and completion of assignments. At the end of the study, the teacher considered the class to be her best-behaved group of students.

Teacher's reactions. The teacher was enthusiastic and cooperative throughout the study. Her quick mastery of and consistent use of approval and ignoring techniques were responsible for the rapid change in student behavior. The teacher reported that ignoring inappropriate behavior and approving of appropriate interrupting were easy for her to do but that approving of not engaging in inappropriate talking made her feel uncomfortable. She stated that the discussions with the E after each session were very helpful in teaching her to control her behavior. According to the teacher, "Learning the correct responses myself took real concentration but the end results paid off . . . not as difficult or emotionally trying as yelling at my noisemakers all period."

Implications. The results of this study suggest that additional research on the effectiveness of rules is needed. Older students may

come under the instructional control of rules more fully than younger children with whom rules have been reported ineffective. Teacher proximity to students, the amount of teacher attention, and the quality of teacher attention should be investigated as factors in the success of procedures involving teacher attention.

The outstanding implication of this study is that teacher supplied social consequences can be an effective means for achieving classroom control of institutionalized juvenile delinquents. In the past, token procedures have been the most popular behavior modification technique with delinquents. Although token systems have been successful, individual teachers do not always have the resources or administrative support to implement them. For such teachers, the systematic manipulation of teacher attention represents a valuable alternative approach. The results of this study provide evidence that a simple strategy of operant conditioning and operant extinction with teacher attention manipulated as the reinforcer has potential applicability to a wider range of Ss than contingency managers had expected.

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APPENDIX

Sample behavior record form.

Inapp Interrupting																								
Inapp Talking																								
App Interrupting																								
Approval for App Interrupting																								
Approval for Not Engaging in Inapp Talking																								
Ignoring Inapp Interrupting																								
Ignoring Inapp Talking																								
	8			9			10			11			12			13			14					
Inapp Interrupting																								
Inapp Talking																								
App Interrupting																								
Approval for App Interrupting																								
Approval for Not Engaging in Inapp Talking																								
Ignoring Inapp Interrupting																								
Ignoring Inapp Talking																								

VITA

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