



7-1970

## Behavioral Changes in a Student in a Regular, Public-School Classroom through Token Reinforcement

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BEHAVIORAL CHANGES IN A STUDENT  
IN A REGULAR, PUBLIC-SCHOOL  
CLASSROOM THROUGH  
TOKEN REINFORCEMENT

by

Bonnie Hardy Kays

A Thesis  
Submitted to the  
Faculty of the School of Graduate  
Studies in partial fulfillment  
of the  
Degree of Master of Arts

Western Michigan University  
Kalamazoo, Michigan  
July, 1970

### ACKNOWLEDGEMENTS

The author expresses appreciation to Dr. Robert Hawkins for his guidance in the preparation of this thesis, and to Dr. Paul Mountjoy and Dr. David Lyon who served on the committee, and to Dr. Russell Scott, Research Psychologist for the Pittsburgh Board of Education, who helped with the statistics. My thanks go to them as well as to Mr. Fred Nichols, Mr. Robert Downing, and the entire sixth grade class of Central Elementary School, Portage, Michigan, whose cooperation made this thesis possible.

Bonnie Hardy Kays

MASTER'S THESIS

M-2445

KAYS, Bonnie Hardy

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PUBLIC-SCHOOL CLASSROOM THROUGH TOKEN REIN-  
FORCEMENT.

Western Michigan University, M.A., 1970  
Education, psychology

University Microfilms, A XEROX Company, Ann Arbor, Michigan

## TABLE OF CONTENTS

	Page
INTRODUCTION .....	1
METHOD .....	6
Subject .....	6
Procedure .....	9
RESULTS .....	15
Arithmetic .....	15
Science .....	20
Language .....	24
DISCUSSION .....	27
BIBLIOGRAPHY .....	30

## INTRODUCTION

A classroom teacher is often faced with the problem of pupils who fail to do their work and disrupt the classroom with inappropriate behavior. Some of these pupils are reassigned to special education programs; but these programs are few and unless the problem is severe the child is left in the regular classroom. The regular classroom teacher must take time to deal with the problem child as well as handle regular teaching tasks.

In the past, theories put forth concerning the treatment of maladjusted children have not been very helpful to the classroom teacher. A common theoretical assumption regarding maladjustment is that the person is "mentally sick" and his inappropriate behaviors reflect an inner disturbance. (Ullmann and Krasner 1966). This offered little help to the teacher, for treatment according to this theory would take the teacher out of his teaching role. (Carlson 1968).

More recently, Bandura (1967), Hewett (1967), Ullmann and Krasner (1966) and others have proposed that the child has simply learned the wrong behaviors and can be taught appropriate behaviors. Exponents of this learning analysis would work at changing the overt behavior rather than trying to treat some hypothetical inner problem. The child's behavior is believed to be "a function of his present environment (in interaction with his physiological

makeup and his history)" (Hawkins, McArthur, Rinaldi, Gray, Schaftenaar, 1967, p. 18). His environment can be manipulated in a manner suggested by known principles of behavior, and a change in his behavior can thus be effected. This is a "behavioral engineering" (Ayllon and Michael, 1959) or "behavior modification" (Ullmann and Krasner, 1965) approach.

This approach has been tried successfully in many educational settings. In the Laboratory Preschool of the University of Washington, Harris, Johnston, Kelly and Wolf (1964) treated cases of crawling, crying, isolate play, and excessive passivity utilizing the principles of reinforcement and extinction. By systematically giving attention, or social reinforcement, when the desired behaviors occurred and avoiding attending to a child when the undesirable behaviors occurred, the teachers gradually eliminated these maladaptive behavior patterns. In the same setting, Allen, Hart, Buell, Harris and Wolf (1964) eliminated the isolate behavior of a child by dispensing teacher attention first for genuine participation in group play. In another nursery school Homme (1963) used high probability behaviors such as running, screaming, and pushing chairs as reinforcers for less probably behaviors such as sitting and looking at the blackboard. Very good control was achieved using the high probability behaviors as a direct consequence of the low probability behaviors. At a later stage, tokens were given for low probability behaviors which could later be used to "buy" high probability behaviors.

Valett (1966) describes a system for applying the principle

of reinforcement in a classroom setting. He observes that "in order for learning to occur the pupil must be motivated...; continued interest and motivation are dependent upon some measure of success and reward for effort expended" (p. 186). The most common and easily dispensed classroom rewards are teacher praise and grades. Unfortunately, in the case of some problem children these reinforcers may be too weak or infrequent to alter the pattern of behavior, though they may be sufficient to maintain existing patterns of appropriate behavior.

In cases where teacher praise is not a strong enough reinforcer to mold acceptable classroom behavior, rewards such as privileges, candy, or tokens exchangeable for special treats may be paired with praise. Kuypers (1968) notes that "tokens initially function as neutral stimuli, and they acquire reinforcing properties by being exchangeable for the back-up reinforcers" (p. 101). The praise, being associated with the stronger reinforcer, may gradually become more reinforcing itself and the stronger reinforcer may be gradually faded out.

In various classrooms for exceptional children behavior modification techniques have proven successful. Whelan and Haring (1966) reinforced appropriate behavior with praise and food and ignored inappropriate behavior. An acceleration in appropriate behaviors resulted. Guay, Werry, McQueen, Sprague (1966) increased visual orientation to the teacher in five school children and improved the rate of following individual instructions in one child using candy as a reinforcer for the desirable behavior. Hawkins, et. al (1967).

report two cases in special classrooms and one in a regular classroom where desirable behavior was increased with the use of behavior modification techniques.

Hall (1967) used social reinforcement to increase desirable behaviors in brain injured children. The children were rewarded by teachers, aids or, in one case, the mother, when the desirable behavior occurred. The behavior changes were effected in a relatively short period. Hall states "as more skillful performance is gained, the child may well come in contact with the 'natural' contingencies available, and further systematic programing may become unnecessary" (p. 476). He also states that "in some cases, social reinforcement comes from peers" (p. 478).

The behavior modification approach is adaptable to the treatment of maladjusted children in a public school classroom, but it requires that the teacher be willing to try new techniques and perhaps allow experimenters and observers to be present. When a problem child is treated in a classroom the teacher is likely to learn a great deal to make him more effective in dealing with similar problems that arise in the future, more effective in preventing such problems from occurring, and more effective in teaching all of the children who come to him each year. The teacher need not set up an elaborate system of reinforcers; McKenzie (1968) suggests some of the reinforcers available to the classroom teacher. They include recess, free time activities, group activities, special privileges (such as running errands), teacher attention, and grades.

Hawkins, et. al (1967) discuss the treating of maladjusted

children in the regular classroom. One problem is that the child will be in the place where he has been emitting undesirable behaviors for a long time, so the situation will present a strong discrimination stimulus for the undesirable behaviors and the modification of such behaviors will thereby be impeded. However, this disadvantage may be offset by the advantage that once the behavior is changed directly in the regular classroom rather than in some other setting--such as a clinic or a special classroom--there is no problem of getting the behavior to generalize to the regular classroom. The regular classroom holds the added advantage of having many well-adjusted children present after whom the problem child can model his behavior and may be involved in the therapeutic program for the child. Valett (1966) notes that "as long as the child is part of the class, he is a member of a social system that can be managed to control his behavior" (p. 186).

The present study is an attempt to change certain academic and related behaviors of a mildly maladjusted child in a regular, public-school, sixth grade classroom, using a combination of token reinforcers and peer approval for appropriate behavior. Thus, the "social system" to which Valett (1966) refers was involved in the therapeutic technique designed to help this boy.

## METHOD

### Subject

Joe<sup>1</sup>, the subject of this study, had been referred to the School Adjustment Program, a program for emotionally disturbed children, for help because he accomplished little or no work in the classroom and, as a result, his acquisition of academic skills was being seriously impeded. An examination of Joe's school records revealed that he was a child who had never kept up with his class. Comments by his teachers such as: "never asks for help," "no interest in schoolwork," "attitude...poor toward schoolwork and friends," "will not work," were common from kindergarten through sixth grade. Joe repeated third grade, had been tutored, had attended summer school, and had attended remedial reading class. His parents were described as "helpful," "interested," and "cooperative." They took Joe to the local Child Guidance Clinic but discontinued after a time. Joe's sixth grade teacher was concerned about getting some help for Joe before he went on to Junior High School the next fall. The teacher expressed the opinion that Joe could do much better work if he had stronger motivation; and the teacher was interested in trying behavior modification techniques in his classroom.

The experimenter observed in the classroom several days before beginning the experiment. Joe was found to be an agreeable child.

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<sup>1</sup>Fictitious name.

He did not seem to be actively disliked by his classmates, but he had few friends and was one of the least respected members of the class. Joe was generally quiet in class, but not attentive in his work.

The following behaviors were chosen as constituting most of Joe's problem in school; the first four categories describe behaviors to be decelerated or weakened, numbers five and six describe behaviors to be accelerated or strengthened: (1) being out of his seat for sharpening pencil, etc.: (2) talking when not called on, either to other students or to call out answers in class; (3) inappropriate use of a writing instrument (writing when inappropriate, writing or drawing which is inappropriate to the lesson assigned); (4) playing with any object not immediately appropriate such as a ruler or pen when their use is not called for, but not including touching his shoes, hair or glasses; (5) writing or erasing when appropriate; (6) going to the teacher for help (a desirable out of seat behavior).

The data were taken during arithmetic, science, and language periods using a technique developed at the University of Washington Laboratory Preschool (see Allen, Hart, Buell, Harris and Wolf, 1964) and being used in classroom research by Hawkins, et. al. (1967). This technique consists of simply recording for each consecutive ten-second interval whether each one of the defined behaviors occurred during that interval. Thus, a particular behavior could be recorded as many as six times in one minute, there being six ten-second intervals in 60 seconds. There are 360 intervals in each hour, and if a specific behavior were recorded in 120 of these intervals, the behavior would be considered to have occurred  $120/360$  or 33.3% of the time. The

ten-second interval technique has the advantage of making it possible to record types of behavior that cannot be readily divided into discrete responses, such as playing with pencil, being out of seat, or writing. Another advantage of this technique is that many different behaviors can be recorded at the same time by one observer.

The start of any period was defined as the time when the teacher told the class to get materials ready, and the end was defined as the time when the teacher called for a new activity or announced the end of an activity. The arithmetic period usually had two parts, an explanation-discussion period for instruction, and a work period, during which the class worked on their assignment. Data were taken only during the work period. The science and language periods were mostly discussion so data were taken during the entire class period.

In order to have a record of Joe's productivity, a class of behavior to be accelerated, the experimenter simply walked around the room after ten minutes of arithmetic work time had passed and noted how many problems Joe and five comparison subjects had completed. The comparison subjects were chosen by the classroom teacher as roughly representative of the group, being two "fast" workers, two "slow" workers, and one "average" worker. These comparison subjects did not know they were being observed. Their performance served as a measure of the difficulty level of each day's work. The average number of problems done by the comparison subjects was to be compared with the number done by Joe, so that any improvement in Joe's productivity could not be attributed to decreased difficulty of the work assigned.

Reliability was checked by having a second observer take the

same data in the classroom, after discussing behavior categories with the experimenter. The second observer sat close to Joe but far enough from the regular observer so that the data sheets of one observer were not in view of the other and the data could be considered independent. Reliability was checked for each category five times, at least once during each phase of the experiment. An index of reliability on any particular behavior was obtained by dividing the number of occurrences recorded by one observer by the number of occurrences recorded by the other observer. In all, with five categories of behavior and data being recorded during three activities, 30 such ratios were obtained. They ranged in value from .28 to 1.00, with a mean of .84. Only three were below .66.

On certain days no data were taken for a particular activity. If the activity was very short or if there was a substitute activity, the behaviors being recorded did not have the same meaning as they did during the usual activity. For example, Joe's being out of his seat was acceptable in the library and talking was acceptable during discussion groups.

#### Procedure

The experiment was divided into four main phases: Baseline, Experimental Phase I (Exp. I), Second Baseline, and Experimental Phase II (Exp. II). The procedures in these phases will be presented in order.

### Baseline

After preliminary discussion with the principal and teacher, the experimenter observes in the classroom every morning. She was introduced by the teacher as someone who studied the work habits of children. During the entire experiment she sat at a desk near Joe. The entire class was instructed not to ask her questions about class work, nor to talk to her during the times when data were being taken. They were allowed to talk to her at other times, such as recess or before school. During the Baseline Phase, the children in the class did not know that data were being taken on only one child. In fact, when the experiment was described to them, they guessed two or three other children before naming Joe as the subject. Also, the experimenter's desk was behind Joe so he could not see what was being recorded and was not distracted by her. After a time it seemed that the experimenter was looked upon as a "fixture" in the classroom; even the classroom teacher remarked that he often forgot about her presence. After six days of Baseline data had been recorded, it was felt that a representative sample of the behaviors to be modified has been obtained and the Experimental Phase was started.

### Experimental Phase I

At the start of Exp. I the experiment was explained to the class when Joe was out of the room. The class was told that the experimenter was going to try a new method for helping children do their best work and Joe had been chosen from this class because he was smart, but he needed help in learning to get more work done. The children were asked to help Joe, to encourage him to do good work by praising him

when he did well. It was explained that Joe would get points for his good work and when a specified number of points were earned, the whole class would get to have a special trip or a treat. The exact nature of that trip or treat was not specified, but bowling, a trip to Western Michigan University, a trip to a University baseball game, roller-skating, and a picnic were mentioned as some possibilities. The purpose of providing the reward to the whole class rather than to Joe alone was to involve the whole class in helping Joe improve. It was hoped that the students would reinforce Joe's working behavior with their attention and other signs of respect.

Later the same day Joe was told by his teacher and the experimenter that by doing better on his regular school work he would be able to earn a trip or a treat for the whole class. It was explained to Joe, much as it had been explained to the class, why he had been chosen and what the treat would be. Joe was willing to try this, but was typically unenthusiastic.

For the first few days Joe was given a small cardboard token to represent each point he earned; on the third day poker chips replaced the cardboard tokens. The tokens Joe earned were put in a small plastic basket near his desk. When ten tokens had accumulated in the basket, Joe was allowed to color in one space of a "Ladder to Success and Fun" chart on the wall. When this ladder was filled in, which required a total of 120 points, Joe had earned a trip for the class.

At first tokens were awarded at the end of each class period, using the experimenter's overall judgment of Joe's behavior. The

number of tokens given was based on the experimenter's subjective impression of the proportion of acceptable behavior occurring during the period. Such things as talking, getting out of seat, or writing were inappropriately considered unacceptable behavior; general attentiveness, work done, and questions asked in class were acceptable behavior. He received four to seven tokens per class. They were placed on his desk by the experimenter with a word of praise such as "good work, Joe." Additional tokens were given for the number of arithmetic problems Joe did during class, provided the assignment was finished (in class or at home), and for book reports, tests, and special projects, depending on the grade Joe received. Joe put his tokens in the plastic basket after each class and counted them and marked his ladder chart during recess.

When Joe had almost all of the required 120 points for the first trip or treat, the class had a discussion and voted to go roller skating. The trip was taken after school on the 12th day of the experiment (6th day of Exp. I). The children appeared to enjoy the outing and when the children thanked the experimenter for the trip they were told to thank Joe instead. On the bus back to school they sang a thank-you song to Joe, and he seemed pleased by all the attention. After the trip a new ladder chart was put up which required more points for a second treat.

On the 8th day of Exp. I (Session 14, indicated by A on all figures) the procedure of dispensing tokens was altered. The new procedure involved dispensing tokens to Joe at the time during a class when desirable behavior was occurring, rather than at the end of each

class. This eliminated a potential problem in the former method, when Joe's acceptable behavior occurred more at the beginning of the class and the tokens given at the end of a class often followed unacceptable behavior. This, of course, is a common problem with delayed reinforcement (see Holland and Skinner, 1961). It was considered of possible practical value to determine whether this more immediate reinforcement would, in fact, produce a more desirable pattern of behavior than had been obtained with the delayed reinforcement procedure. If not, perhaps a classroom teacher could obtain good results, with subjects like Joe, using the more convenient system of evaluating performance and providing consequences at the end of each class period.

Another procedural modification was introduced at this time because it seemed that Joe was earning most of his tokens by just sitting quietly and listening in class and was not consistently finishing arithmetic assignments or making high grades. His tokens for class behavior were now put into a "bank," a class jar, and could not be counted on the chart until he had made a good grade on a test or an assignment. An A was worth  $1/2$  of the tokens in the bank, a B was worth  $1/4$ , and a C  $1/5$ . Thus, the more tokens Joe had in the bank for good behavior in class, the more were available for the chart when he received a good grade.

### Second Baseline

When Joe had accumulated over  $1/2$  of the points on the second ladder, a Second Baseline Phase was introduced to see if the dispensing of tokens was the variable which had produced improvement in Joe's behavior. After the 11th day of Experiment I (Session 17) the experi-

menter explained to the class that, due to reasons beyond her control, the experiment would have to stop at this time, but would perhaps be resumed again at a later date. Joe seemed very disappointed that the experiment was being discontinued. During the nine days of the second baseline the same data were collected by the same experimenter, and the chart and bank were left in the room, but no tokens were dispensed.

### Experimental Phase II

After eight days of Second Baseline, Exp. II was begun. It was explained to the class that now it would be possible to continue with the experiment and that if Joe worked hard there would still be time before the end of the school year to earn enough points for another class treat. Because there were several end-of-year tests and projects for which Joe was able to earn the tokens which had been left in the bank from Exp. I, he filled his chart in only two days. For their second treat the class decided on a party to be held on the last day of school. The class chose what refreshments would be served. At the party Joe was the host and was allowed to choose classmates to do special jobs such as serving the refreshments.

As there were several days of school left after Joe had earned the points for the second treat, he was given the opportunity of buying toys with the additional points he earned. Some small toys were brought in by the experimenter and point values were assigned to each item. Joe was allowed to buy a toy between classes or at recess time if he had earned enough points from the bank. In the last three days of the experiment Joe bought ten toys varying in monetary value from about 15 cents to 50 cents each.

## RESULTS

The behavioral data recorded during all phases of the experiment are presented separately for each classroom activity. Each day on which data were recorded is given a session number. When, on some days, data were not recorded during a particular activity no data point appears for that session on the graph for that activity. The behavior of playing with object occurred at a very low frequency during all subjects, for this reason it has been combined with the behavior of playing with pencil in all results, and called "playing" in the figures.

### Arithmetic

Joe's productivity in arithmetic is presented in Figure 1 as the number of problems done in the first ten minutes of the period. The mean productivity of the five comparison students is also presented (Figure 2). On five of the six days of Baseline, data could be recorded on arithmetic productivity. On three of the five arithmetic periods Joe failed to complete any problems in the first ten minutes of the period. The mean number of problems completed in ten minutes during Baseline was 0.8. Joe improved immediately at the beginning of Exp. I and maintained his improved performance throughout the Phase, completing a mean of 5.7 problems in ten minutes. This performance was still far below the comparison group, however.

During the 12 days of the two Baseline Phases combined Joe completed a mean of 2.4 problems in the first ten minutes of the arithmetic periods; whereas in the 12 days of the two Experimental Phases,

FIGURE 1 ARITHMETIC

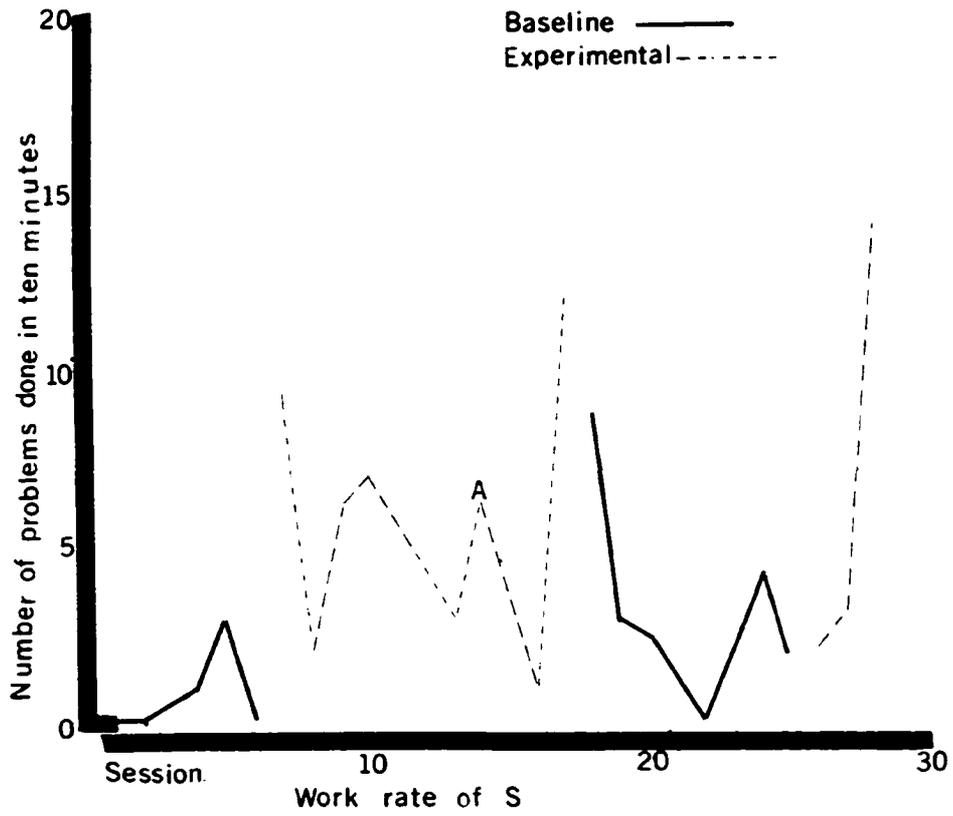
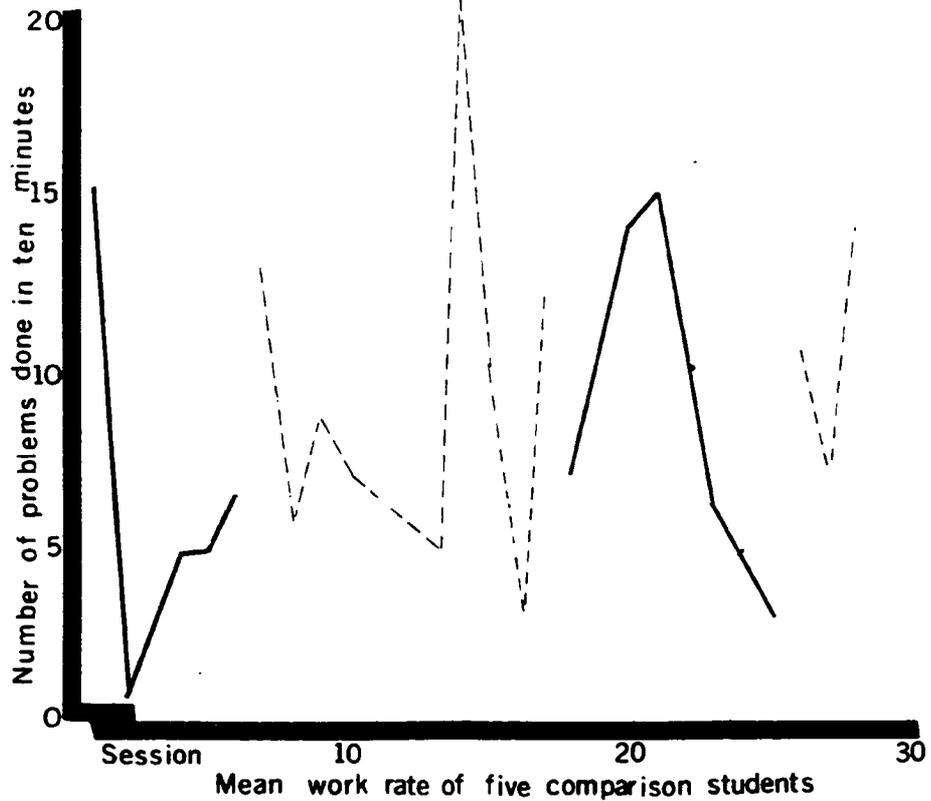


FIGURE 2 ARITHMETIC



he completed a mean of 5.8 problems. These means differ significantly ( $\chi^2 = 4.19$ ;  $df = 1$ ;  $p < .02$ ). The comparison group completed a mean of 7.9 problems during the Baseline Phases and a mean of 9.9 during the Experimental Phases. These means are not significantly different ( $\chi^2 = 1.013$ ;  $df = 1$ ;  $p < .30$ ).

Figure 3 presents the percentage of each arithmetic period Joe spent exhibiting writing behavior. During Baseline Joe was writing a mean of 16.7% of the arithmetic period. He improved somewhat during Exp. I, spending a mean of 28.9% of the period writing. The mean for the two Baseline Phases combined was 18.5% and for the two Experimental Phases combined was 31.5%. These means differ significantly ( $\chi^2 = 8.397$ ;  $df = 1$ ;  $p < .001$ ) suggesting that this appropriate behavior was strengthened by the experimental contingencies.

During Baseline, Joe played with a pencil (Figure 4) an average of 31.4% of the arithmetic period. This decreased to a mean of 11.1% during Exp. I. The mean for the two Baseline Phases combined was 47.9% and the mean for the two Experimental Phases combined was 15.7%. These means differ significantly ( $\chi^2 = 10.69$ ;  $df = 1$ ;  $p < .001$ ), indicating that Joe spent less time in this particular nonworking behavior when the experimental contingencies were in effect.

Generally, Joe spent very little time out of his seat during arithmetic (Figure 5), so there was almost no possibility of improvement. None was obtained. On the other hand, going to the teacher for help (Figure 6) was an acceptable behavior. This behavior occurred only when experimental contingencies were in effect. However, it was

FIGURE 3 ARITHMETIC

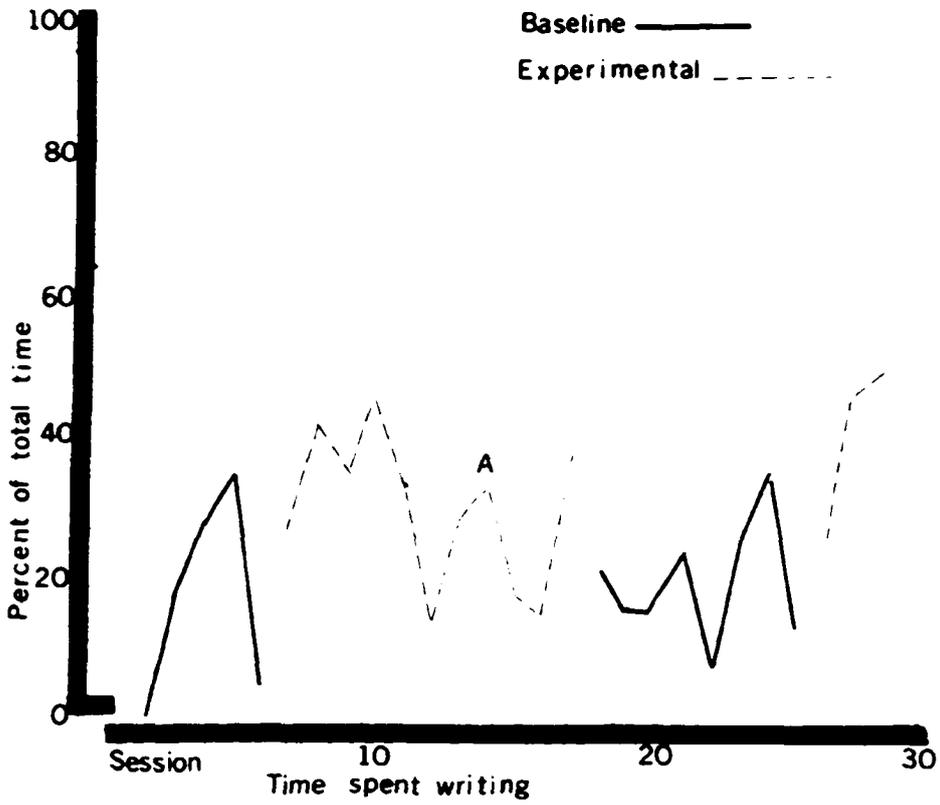


FIGURE 4 ARITHMETIC

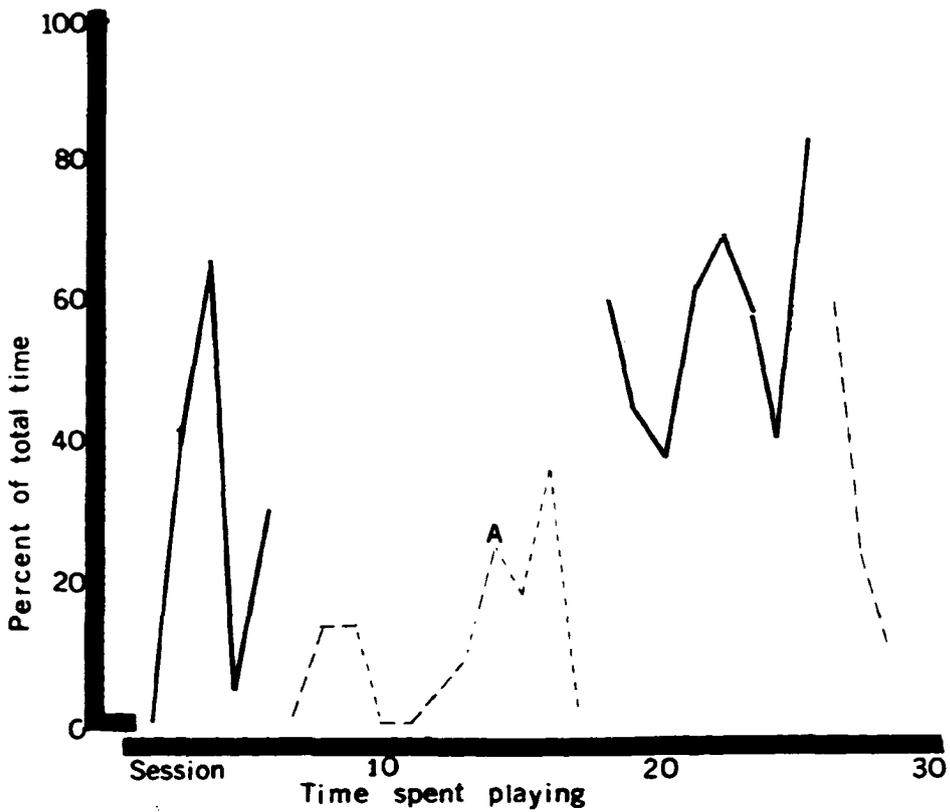


FIGURE 5 ARITHMETIC

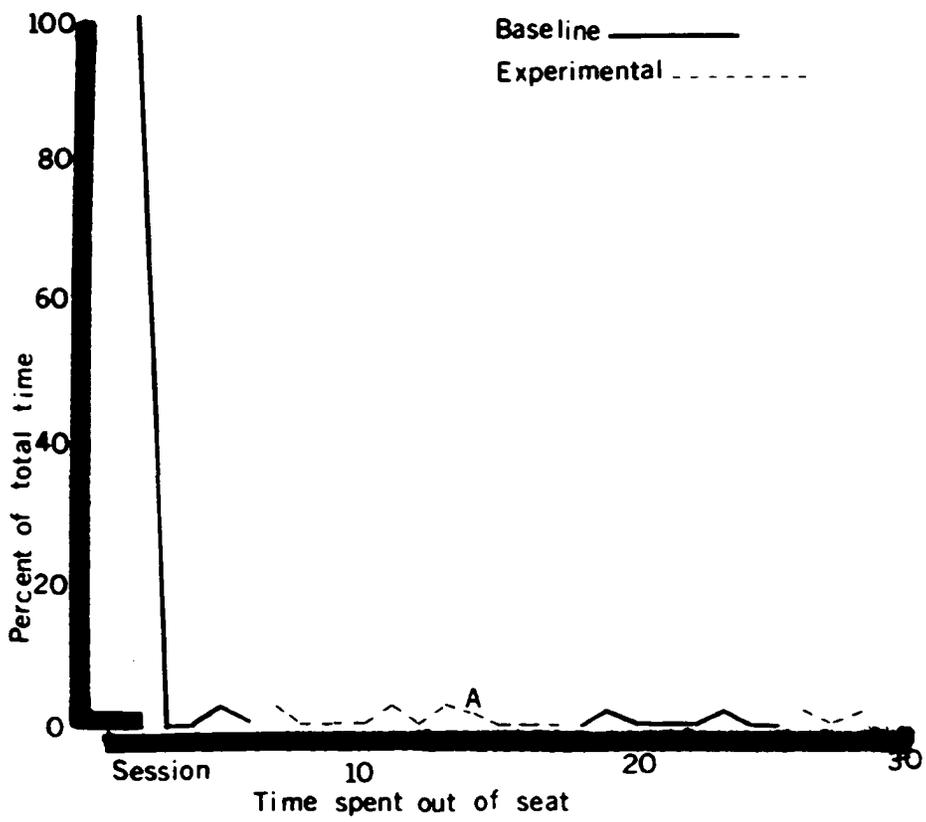
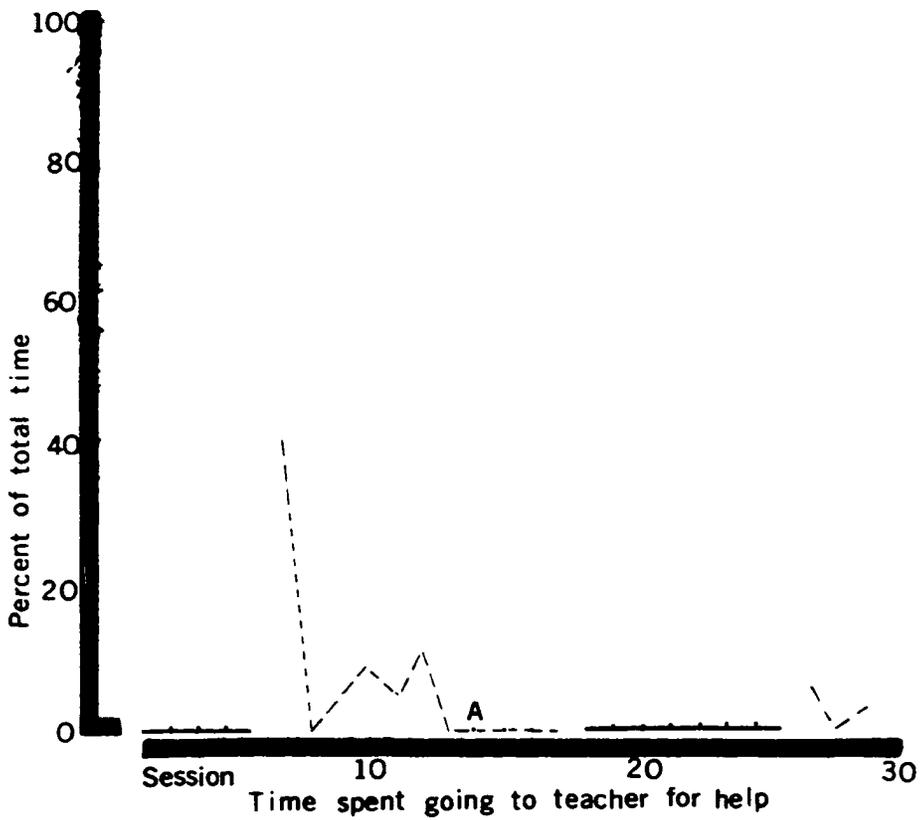


FIGURE 6 ARITHMETIC



infrequent even then, therefore, statistical tests were not used on this behavior.

The data for talking during arithmetic are shown in Figure 7. Joe spent a mean of 16.5% of the period talking during the Baseline Phase. This dropped considerably during Exp. I, to a mean of 2.09%. The mean for the two Baseline Phases combined was 8.5% and for the two Experimental Phases combined was 2.14%. These means do not differ significantly ( $\chi^2 = 1.78$ ;  $df = 1$ ;  $p > .10$ ).

#### Science

The graph of the percentage of time Joe spent playing with his pencil during science (Figure 8) indicates that the playing decreased during the Experimental Phases. Joe spent a mean of 39.0% of the period playing during Baseline, and this decreased to 10.0% during Exp. I. The mean for the two Baseline Phases combined is 56.0% and the mean for the two Experimental Phases is 1.8%, this difference is not significant ( $\chi^2 = 1.26$ ;  $df = 1$ ;  $p > .20$ ).

A valid statement concerning writing behavior (Figure 9) during science cannot be made because there were opportunities for writing during science only one day during Baseline and five days during the Experimental Phases.

The behaviors of talking and being out of seat (Figure 10) were combined because they both occurred such a small percentage of the time. As the rates were already low under Baseline conditions (a mean of 6.4%), there was little room for improvement occurred (a mean of 3.9% during Exp. I and II), for this reason statistical tests were

FIGURE 7 ARITHMETIC

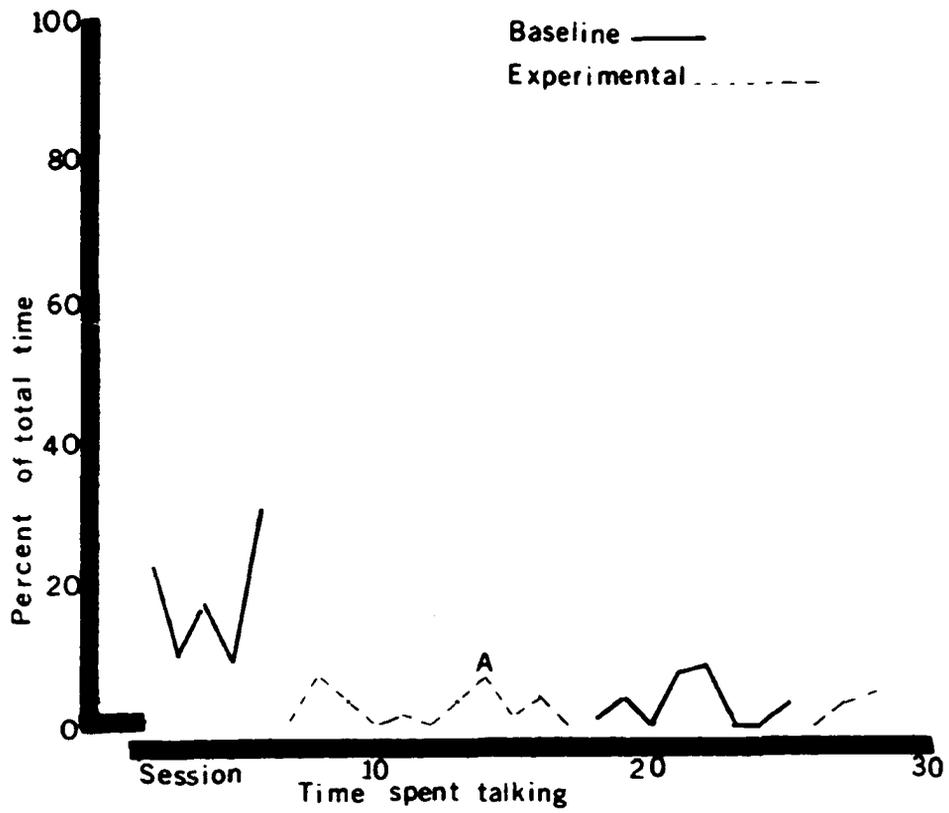


FIGURE 8 SCIENCE

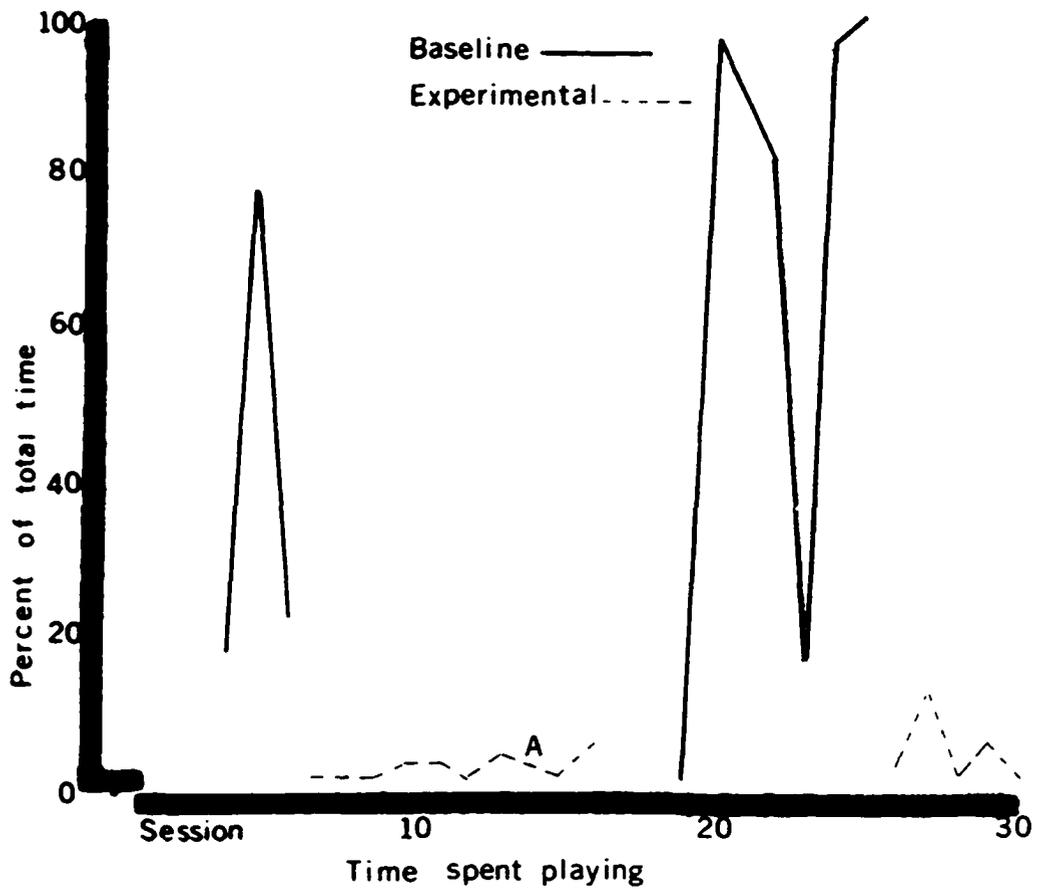


FIGURE 9 SCIENCE

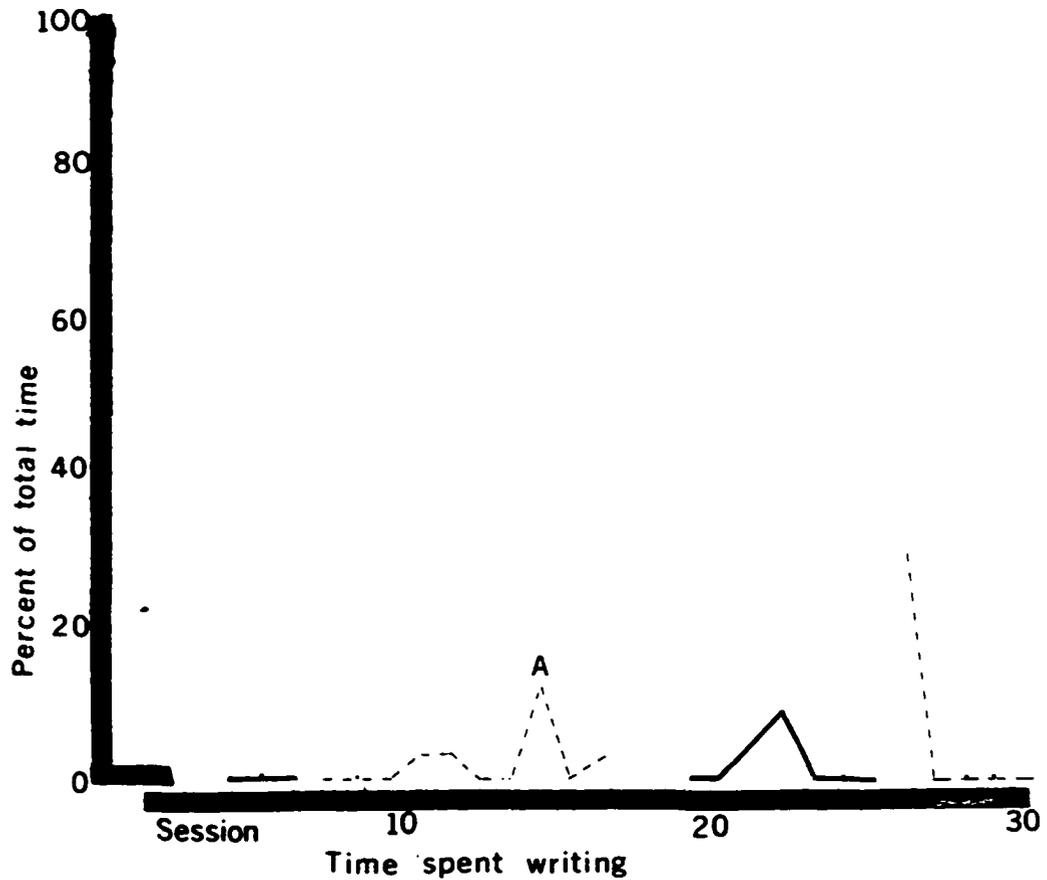
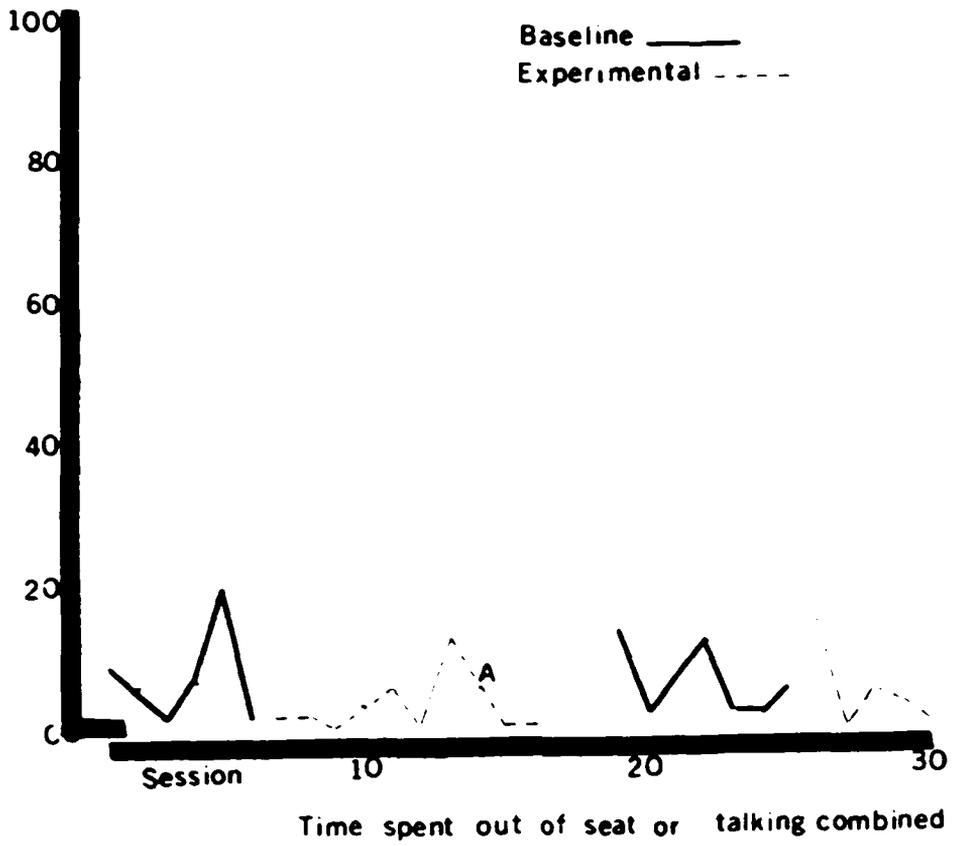


FIGURE 10 SCIENCE



not used on these behaviors.

### Language

The results obtained during language class were similar to the results noted in science class. During Baseline, Joe spent a mean of 17.9% of each period playing with his pencil (Figure 11). This decreased to a mean of 5.5% during Exp. I. The mean for the two Baseline Phases combined was 33.0%, while the mean for Exp. I and II combined was 4.5%. This difference is significant ( $\chi^2 = 4.26$ ;  $df = 1$ ;  $p < .05$ ).

In language class, as in science class, writing (Figure 12) was not always called for (only 9 of 21 periods required writing). There was not a marked change in writing behavior between Baseline (mean 16.5% and Exp. I (7.5%) or between the two Baseline Phases combined (4.9%) and the two Experimental Phases combined (8.0%). Statistical tests on these data would not be meaningful because of the infrequency of writing behavior.

The experimental procedures do not seem to have had much effect on the behaviors of talking and being out of seat. Since they both occurred at such low rates they were combined (Figure 13), and even the combined rates were low. There was little change from Baseline (mean 9.1%) to Exp. I (mean 15.4%) and the difference between the two Baselines combined (mean 8.2%) and the two Experimental Phases combined (mean 5.0%) was not significant ( $\chi^2 = 1.50$ ;  $df = 1$ ;  $p > .20$ ).

FIGURE 11 LANGUAGE

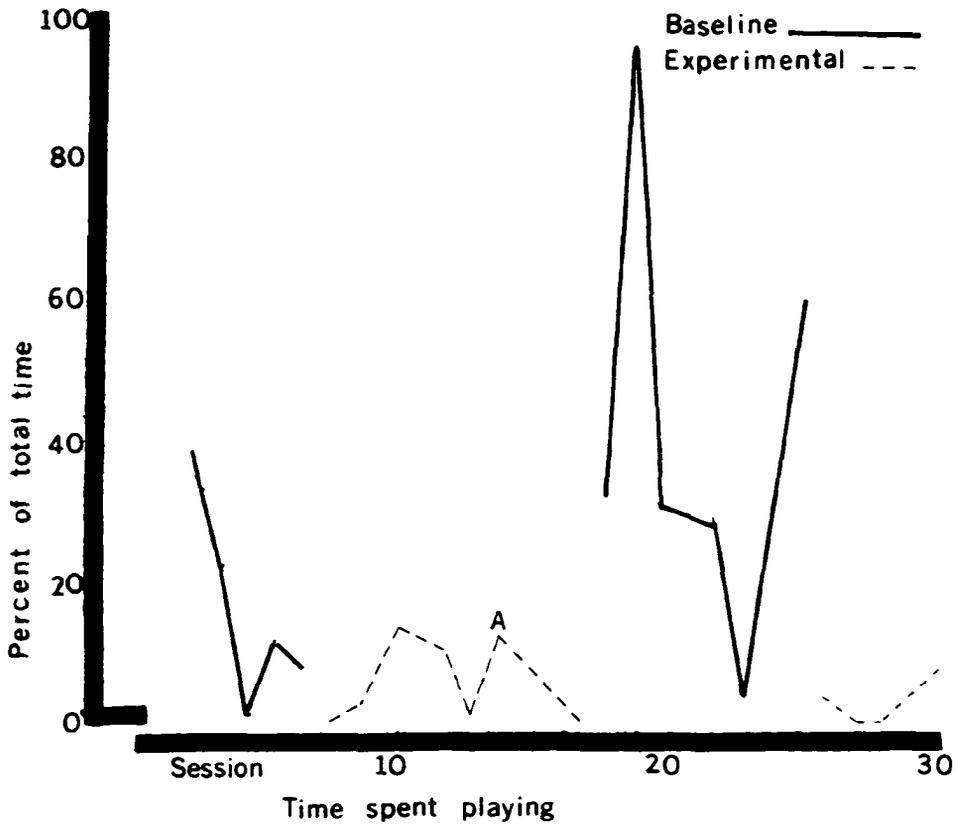


FIGURE 12 LANGUAGE

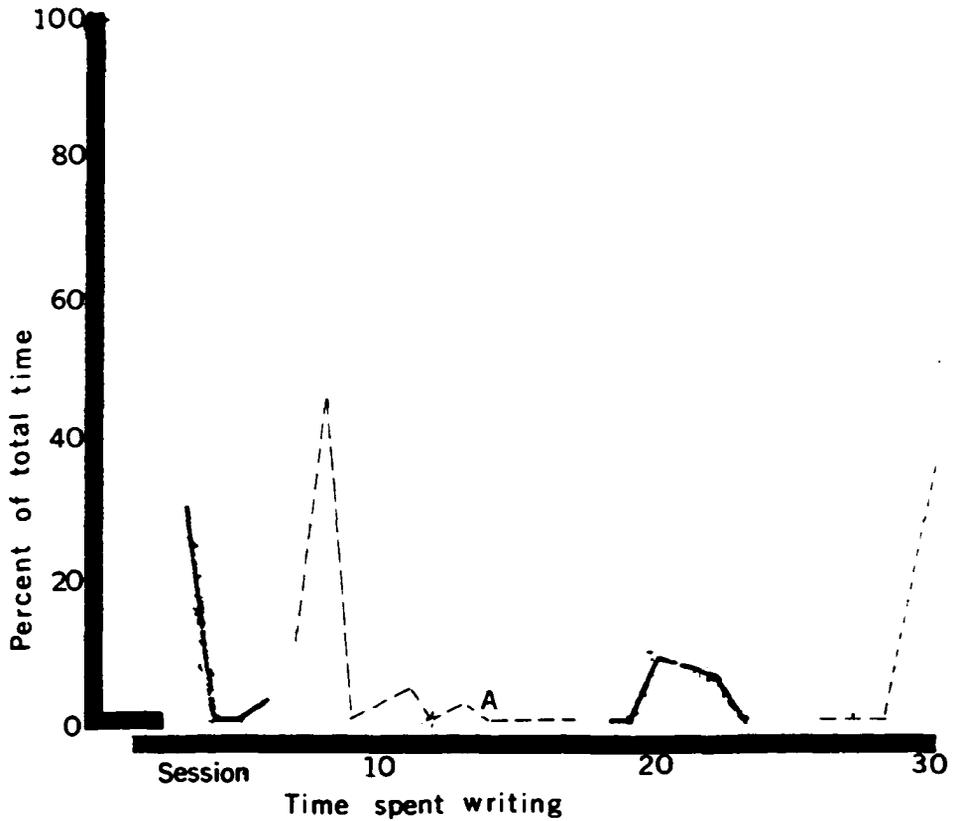
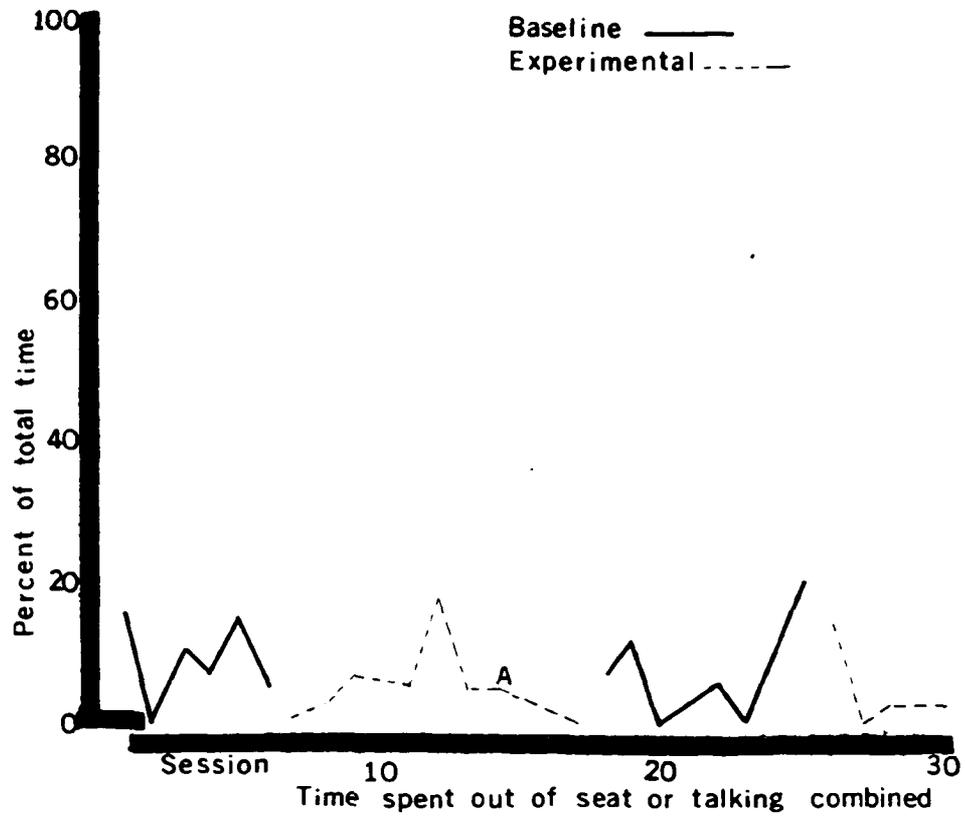


FIGURE 13 LANGUAGE



## DISCUSSION

The clearest effects of the experimental contingencies were in arithmetic. Joe spent more time writing and less time playing with objects and talking during the Experimental Phases. He also spent more time going to the teacher for help and accomplished more work.

In science and language periods the classes of behavior chosen showed little change during the Experimental Phases because, except for playing, Joe exhibited little of the inappropriate behaviors and the appropriate behaviors (writing) and going to teacher for help were not always called for. The one inappropriate behavior that occurred frequently was playing; and this did show improvement under the experimental contingencies.

While Joe's productivity and acceptable behavior in class increased during the Experimental Phases, his report card grades did not show any marked improvement. If the experiment had started earlier in the school year, Joe might have had sufficient opportunity to improve his academic skills. As it was, there was not time to do enough remedial work so that Joe could function at the level of his classmates.

Visual inspection of the graphs (Figures 1 to 13) seem to indicate that Joe's behavior was not markedly affected by the change from delayed to immediate reinforcement (indicated by A on all graphs). For statistical tests to be valid for this measurement, a much more controlled study of delayed vs. immediate reinforcement would have to

be made. The present results, in a sense, are encouraging, for delayed reinforcement is often more practical in a classroom than is the more immediate system, being less demanding on teacher time and attention. The delayed reinforcement may be more effective on older children, who are better able to evaluate their own behavior, than on younger children.

Besides these objective data, both the experimenter and the teacher made subjective observations regarding Joe's behavior and that of his classmates. Regarding Joe's attitude toward his work, the teacher stated that before the experiment "Joe would do only that amount of work which he was forced to do through constant supervision. This supervision was usually after school hours and done by his parents and oftentimes a tutor. During the Experimental Phases Joe worked on his own and often asked if he could stay in at noon...to work on his assignments." The teacher also stated that when Exp. I started there was a considerable amount of attention given to Joe, but that "this soon dropped off and was replaced by a genuine concern for Joe by a few of the more mature students. There was quite definitely a change of attitude of the class (generally) toward Joe at the end of the experiment." Joe was usually ignored or teased before the experiment, but during the Experimental Phases there were always several classmates to help him count his tokens and mark his chart.

For the experimenter, the most dramatic evidence of change occurred on a field trip that the class took two days before the end of school. The teacher reported, "I was surprised to see Joe in the rear of the bus leading the singing with other members of the class,

something I feel was a direct result of the experiment." The whole approach of the experiment, which did not belittle Joe but gave him the opportunity to do something for the class, seemed to make Joe more self-confident.

The use of a reward system in which the whole class could participate seemed to increase their interest and respect for Joe and subsequently improve his own feelings about himself. The involvement of peers as therapeutic agents could be applied in any group situation where a child or even a group of children would benefit from improved relationships with peers. More research is needed in this area to discover effective ways of doing this.

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