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AUTHOR Messelroad, Elizabeth M.; Vargas, Julie S.
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ABSTRACT

This study asked whether or not points which could add to a student's grade would reinforce studying in high school students. The study was conducted in a tenth grade biology class of 33 college bound, lower-class students. Four additional people were present in the class: two observers and two teacher aides to administer points. To accurately record the behavior, 12 students were randomly selected and observed in detail. Students were given either a point score, a signature, or nothing for their daily study behavior. Results showed that the giving of signatures did have an effect on the behavior of the 12 students. The average study behavior increased when points were given and decreased when they were not given. The predicted pattern of increased studying during contingent point giving occurred in seven out of 12 students. The present study has shown that grade increments will serve as a reinforcer for typical secondary school students. (KJ)

THE EFFECT OF POINTS EXCHANGEABLE FOR GRADES AS A REINFORCER FOR STUDY BEHAVIOR OF HIGH SCHOOL STUDENTS

Elizabeth M. Nesselroad and Dr. Julie S. Vargas
West Virginia University

Introduction

Various reinforcers have been used to change the behavior of individuals. Social reinforcers such as teacher attention or praise are effective at the pre-school and elementary school level (Madsen, et. al., 1968; Hart, et. al., 1968). At the secondary school level, one study of seventy-four classrooms showed that students whose compositions received written comments scored higher on subsequent compositions than those receiving no comments (Page, 1958).

In addition to social reinforcement, token economies have been successful in controlling behavior. In a typical token economy, tokens or points are given for desired behaviors. The tokens, then, can buy priviledges such as extra recess, or articles such as snacks, or small toys. At the kindergarten or elementary school level, token economies have produced attentiveness and accelerated achievement, and have eliminated disruptive behaviors such as talking out or shoving (Birnbrauer, et. al., 1965; O'Leary, et. al., 1969).

At the secondary school age, token economies have been applied only in special situations. Staats and Butterfield (1965) studied the reading responses in a non-reading juvenile delinquent using tokens as reinforcers. Cohen (1967), using a token economy within a penal institution, was successful in increasing achievement.

In both these cases, tokens could be exchanged for a wide variety of goods and services. For the public secondary school classroom, however, such an elaborate system is impractical and expensive. Public schools do, however have a reinforcer readily available--one that is easily administered. That reinforcer is grades. If grades, properly utilized, could be used as a reinforcer, then the typical teacher in the typical school has the means to effectively motivate learning. The methods of behavior modification could then feasibly be applied.

Design

The present study asked whether or not points which could add to a student's grade would reinforce studying in high school students.

The study was conducted in a tenth grade biology class of 33 students. The majority of students were listed by the administration as college-bound but were from generally lower-class homes.

Normal classroom procedures were interrupted as little as possible. The teacher continued his usual lectures and laboratories and gave tests and quizzes at regular intervals. However, there were four additional people in the class: two seated observers and two teacher aides who walked about administering points.

Since it was not feasible to accurately record the behavior of all 33 students, twelve students selected at random were observed in detail. The observers were trained on video-tape until their classification of student behavior (see Figure I) obtained

Observer _____

Day _____

Date _____

Student

Activity		1	2	3	4	5	6
Out of seat--Learning Activity	(A)						
Talking to peer--learning activity	(B)						
Talking to group or teacher	(C)						
Assigned Material At desk	(D)						
Out of seat--bathroom, drink, etc.	(E)						
Talking to peer--non-learn. act.	(F)						
Play	(G)						

FIGURE I

OBSERVER RATING SHEET

a reliability of 90% or better. Each observer checked the behavior of six students about 40 times each during each class period of fifty minutes. The student was then given a score for the day equal to the ratio of study behavior (categories A - D in Figure I) to total observations.

The study was divided into four treatment periods of four days each. (See Table I.)

TABLE I

DESIGN OF STUDY

Period	Day	Study Activity
I	1 - 4	Gather base behavior
II	5 - 8	Points for good study behavior
III	9 - 12	Points independent of good study behavior
IV	13 - 16	Points for good study behavior

Period I: For the first four days, observations were made of the twelve students to determine their normal study level, but no points were given for good study behavior.

Period II: At the beginning of period II, all students were given a Point Record (see Figure II) and told that initials would be given for studying behavior and that these could increase their

Student's
Name _____

Monday	Day	Date	Day	Date	Day	Date	Day	Date
Tuesday	Day	Date	Day	Date	Day	Date	Day	Date
Wednesday	Day	Date	Day	Date	Day	Date	Day	Date
Thursday	Day	Date	Day	Date	Day	Date	Day	Date
Friday	Day	Date	Day	Date	Day	Date	Day	Date

FIGURE II

STUDENT'S POINT RECORD

nine-weeks grade as much as half a grade(for example from B to A-). Just how many signatures were required was not specified. Teacher aides then circulated about the room signing the students' point records.

The initials were given to each student in a row who was judged studying at the time the row was observed. The order in which rows were observed was randomized, but each row was observed the same number of times. Because there were two aides giving initials, it was possible for a row to be observed at any time during the class, even twice in succession. Each student could get about 20 signatures per day.

Period III: At the beginning of period III, the students were told that they would be credited with signatures at the beginning of each day whether or not they were observed as studying. Observation of the twelve students continued but the teacher aides did not circulate through the room.

Period IV: At the beginning of period IV, students were told that they must again earn their signatures by good study behavior. No other explanation was given. Teacher aides again administered the points and observation continued as usual.

At the end of Period IV, the total number of possible points was computed and points received by each student was totaled. A ratio of received points over possible points was then computed for each student and converted into a percentage score. The amount of grade increment for each student was then determined according to the percentage of good study behavior. (See Table II.)

TABLE II

DISTRIBUTION OF BONUS POINTS

Percentage Good Study Behavior	Bonus Points
75 - 80%	1
81 - 85%	2
86 - 90%	3
91 - 93%	4
94 - 95%	5

Results

Even with the rather small portion of a grade riding on study behavior, the giving of signatures did have an effect on the behavior of the twelve students observed (see Figure III). The average study behavior increased when points were given and decreased when they were not given. T-tests between means of each pair of successive periods (II vs. I, II vs. III, etc.) were all significant at the .05 level of significance. (See Table III.)

The effect of giving signatures on each individual's study behavior is shown in Figure IV (page 9).

The predicted pattern of increased studying during contingent point-giving (periods II and IV) occurred in seven out of twelve students. (The probability of seven out of twelve individuals having one pattern by chance is .0002.) Two of the remaining students (numbers 6 and 10) had such a high initial study percentage

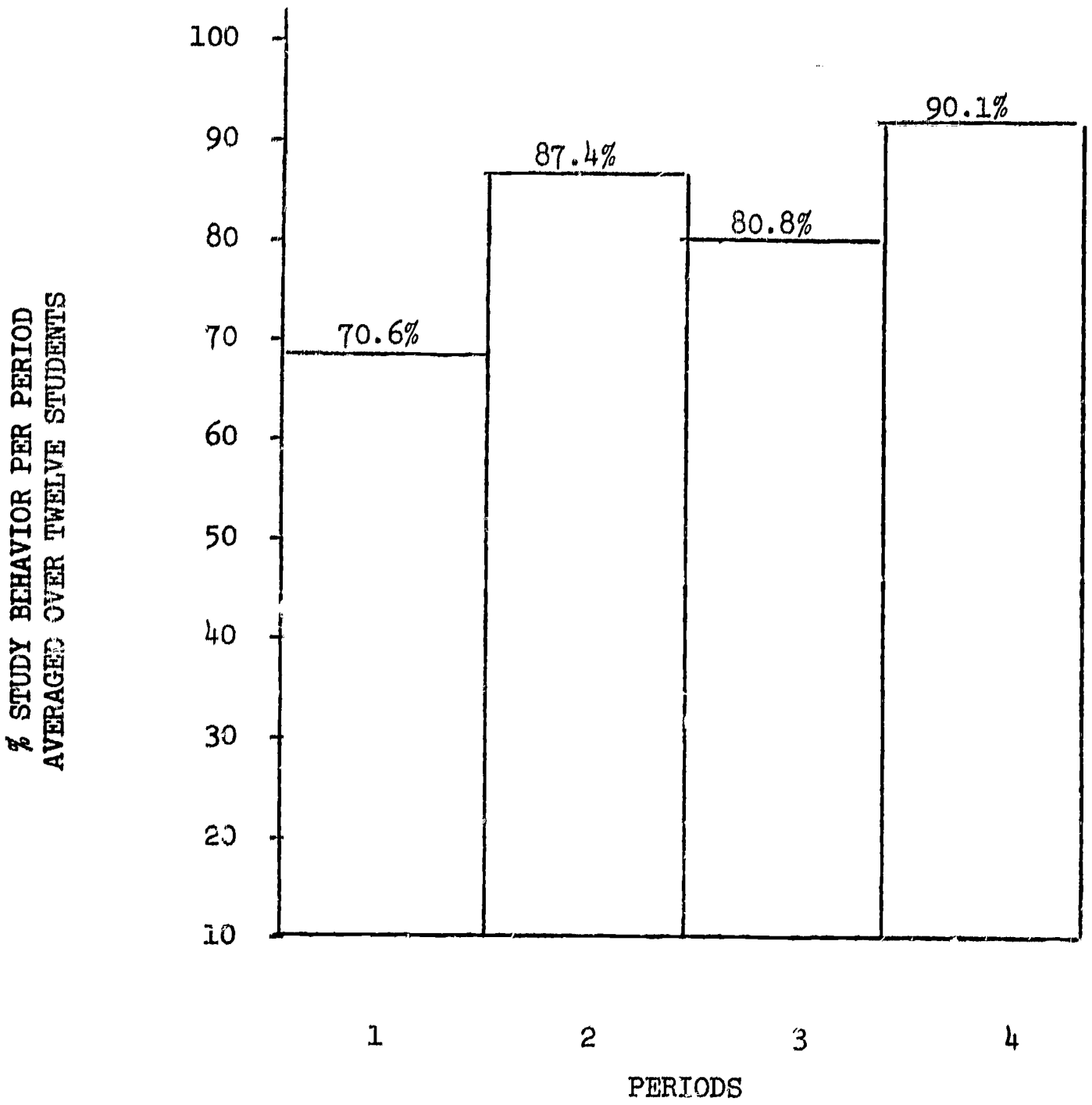
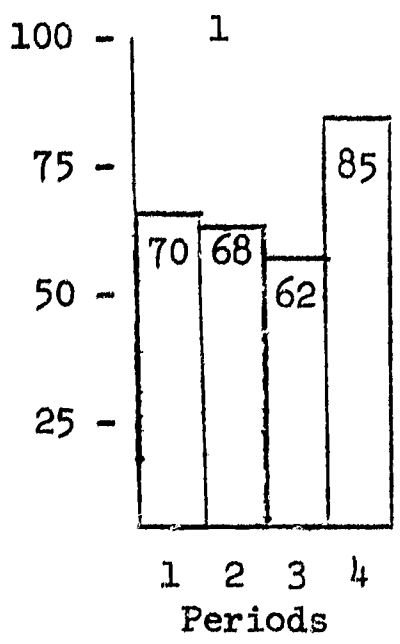
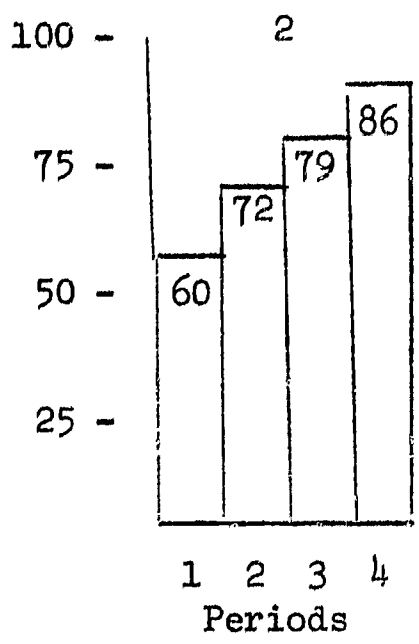
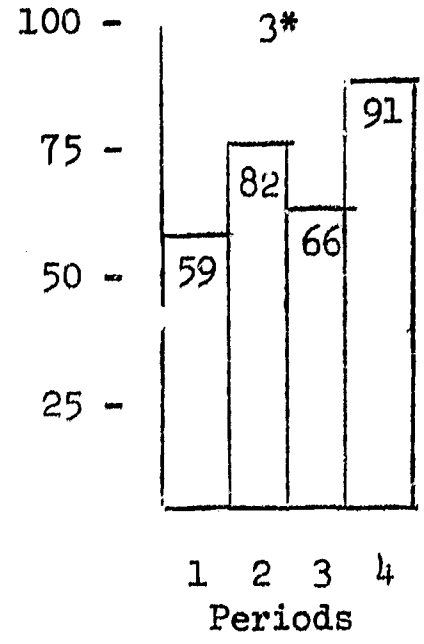


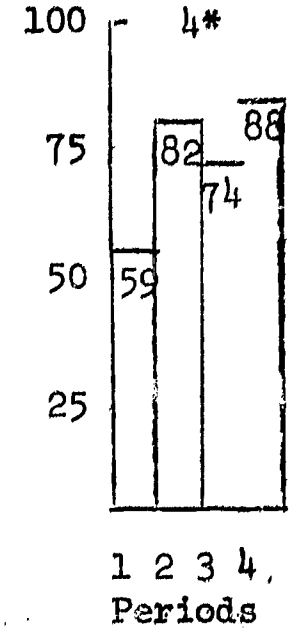
FIGURE III

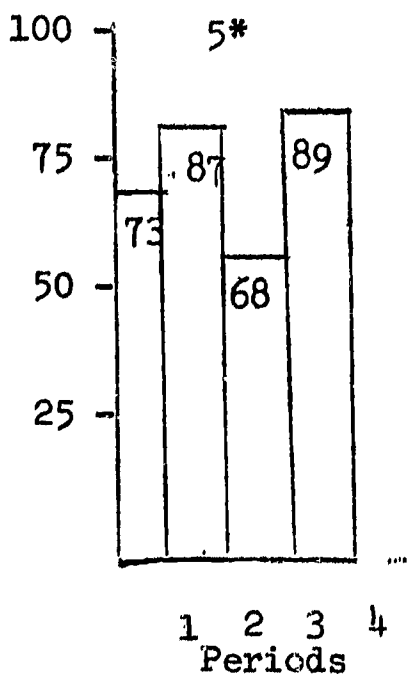
GROUP MEANS OVER FOUR PERIODS

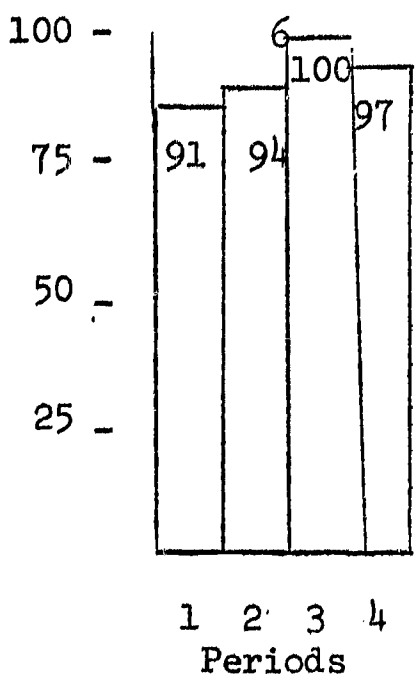


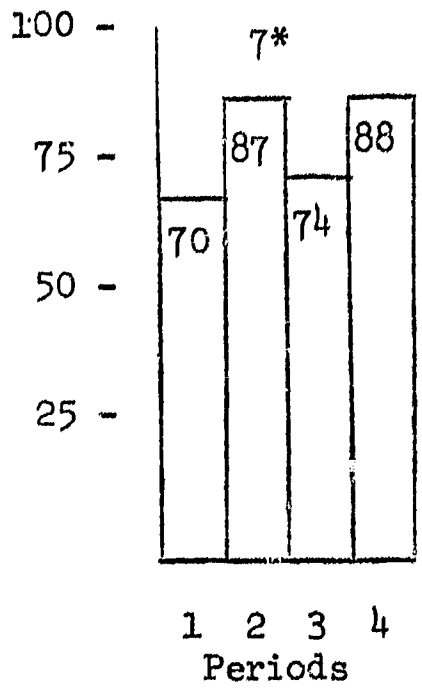


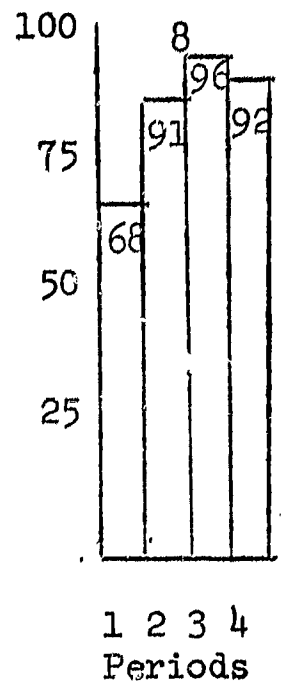


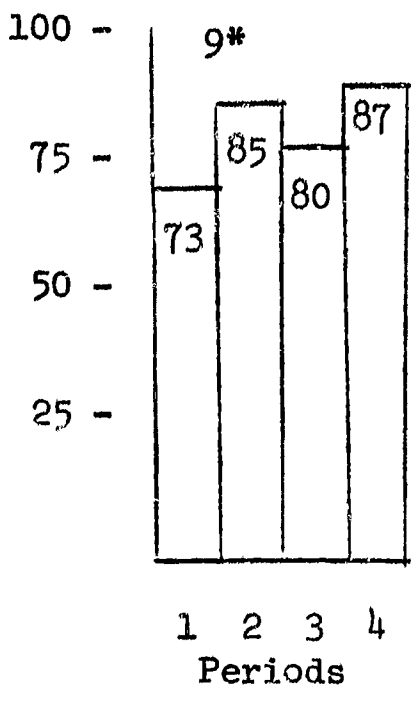


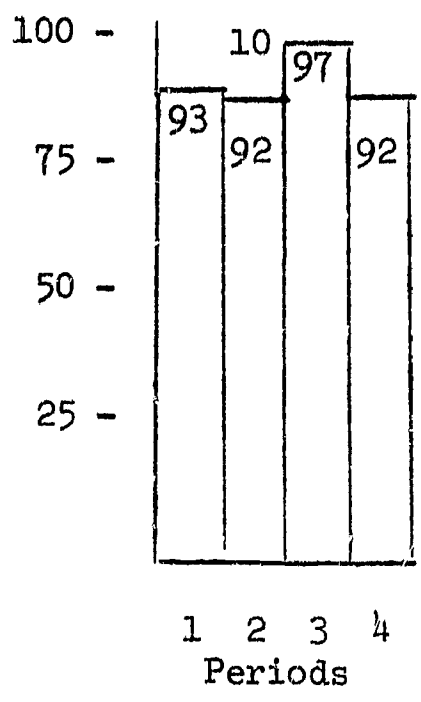


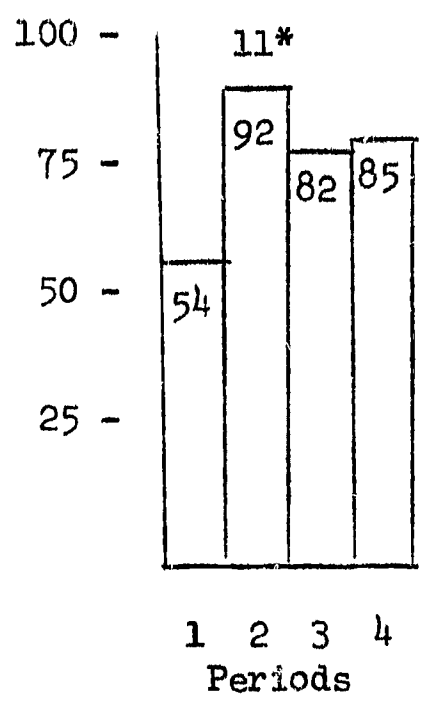












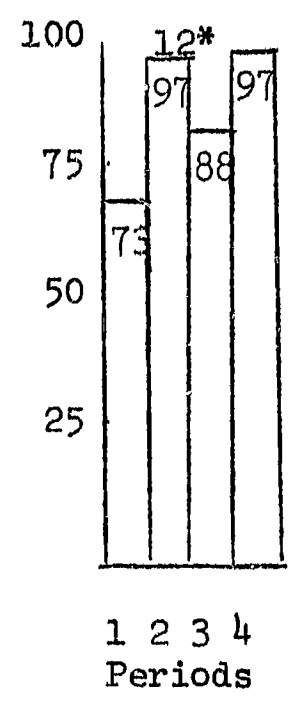


FIGURE IV

INDIVIDUAL MEANS OVER FOUR PERIODS

that improvement would have been difficult. Still, the giving of points seemed not to influence the behavior of some students.

TABLE III

T-TEST RESULTS FOR GROUP PERIOD MEANS

	n	d	d^2	t
Period II versus Period I	12	201.5	5089.03	4.72*
Period II versus Period III	12	79.0	1494.80	2.43*
Period IV versus Period III	12	111.2	2156.10	3.18*

*significant at .05

Comments and Conclusions

A large part of America's youth are not motivated to study in the public school system. In New York City, for example, on an average day, 25% of the students are absent.[1] Playing hookey is an extreme of avoiding school work, but there are many more common methods. Few of the students in a typical class are putting forth anything like their maximum effort. In high school,

[1]Christian Science Monitor, "Abandoning the Schools," February 6, 1970.

particularly, daydreaming, talking to peers, notepassing, even sleeping in class are typical classroom behaviors. Hostility towards the teachers or the school itself is not uncommon.

These kinds of undesirable behaviors are typical by-products of aversive control, which is the kind of control most used in today's schools. The teacher threatens, reprimands, or otherwise punishes undesirable behavior, or failure to perform, but rarely systematically rewards good behaviors. To motivate through positive reinforcement, the teacher must 1) locate a reinforcer and 2) make it contingent on desirable behavior. The present study has shown that points which add to a student's grade can serve as a positive reinforcer, even when they add only a small increment to a grade. The typical teacher in the typical high school, then, has a reinforcer available and one could expect it to be much stronger if the whole grade were at stake. The problem in motivating desirable behavior lies in establishing contingencies. For maximum effectiveness, reinforcement must be frequent and must immediately follow desirable behaviors. In the present study, frequency was accomplished through the addition of extra personnel, a resource not available to most teachers. In addition, the specific behaviors to be rewarded were not specified precisely enough; the aides reported that they could not distinguish between studying and daydreaming if a student was facing his book.

Both of these problems could be overcome by breaking down a subject area into specific assignments, or skills to be learned and assigning points for each successfully completed objective. A student's total grade would depend on the total points, and would be earned bit by bit over an entire grading period.

The present study has shown that grade increments will serve as a reinforcer for typical secondary school students. The resources for motivating students are thus available to the average classroom teacher. With more precision in specifying objectives and in assigning grades, student motivation and learning could be substantially improved. The problem in education today is not generally one of inadequate resources but of failure to utilize effectively the resources we have available.

References

Birnbrauer, J. S., Wolf, M. M., Kidder, J. D., and Tague, C. E. "Classroom Behavior of Retarded Pupils with Token Reinforcement," Journal of Experimental Child Psychology, 2: 219-235, 1965.

Cohen, Harold. Case II (Slide and Tape Series), Institute of Behavioral Research, 1967.

Hall, R. Vance, Lund, Diane, and Jackson, Deloris. "Effects of Teacher Attention on Study Behavior," Journal of Applied Behavior Analysis, 1: 1-12, 1968.

Hart, Betty M., Reynolds, Nancy J., Baer, Donald M., Brawley, Eleanor R., and Harris, Florence R. "Effects of Contingent and Non-Contingent Social Reinforcement on the Cooperative Play of a Pre-School Child," Journal of Applied Behavior Analysis, 1: 73-78, 1968.

Madsen, Charles H., Jr., Becker, Wesley C., and Thomas, Don R. "Rules, Praise and Ignoring: Elements of Elementary Classroom Control," Journal of Applied Behavior Analysis, 1: 139-150, 1968.

O'Leary, K. D., and Becker, W. C., "Behavior Modification of an Adjustment Class: A token Reinforcement Program," Exceptional Children, 33: 637-642, 1967.

O'Leary, K. D., Becker, W. C., Evans, M. B., and Saudargas, R. A. "A Token Reinforcement Program in a Public School: A Replication and Systematic Analysis," Journal of Applied Behavior Analysis, 2: 3-13, 1969.

Page, Ellis B. "Teacher Comments and Student Performance: A Seventy-four Classroom Experiment in School Motivation," Journal of Educational Psychology, 49: 173-181, 1958.

Staats, A. W., and Butterfield, W. H., "Treatment of Non-Reading in a Culturally Deprived Juvenile Delinquent: An Application of Reinforcement Principles," Child Development, 36: 925-942, 1965.