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ABSTRACT

The effects of two types of self-determined reinforcement contingencies on children's test performances were investigated and compared to each other and to externally determined contingencies. In Experiment I, fourth-grade children's test performances were measured on a curriculum of history facts, Spanish-English word pairs, and reading comprehension passages for three baseline sessions utilizing feedback (self-assessment and self-recording) and three contingency sessions. Classrooms were randomly assigned to one of five conditions, which included a control condition of noncontingent reinforcement. Three contingency conditions resulted in significant and comparable increases in total test performances over the control: externally determined contingencies set in advance of performance, self-determined contingencies set in advance of performance when children were trained in contingency selection, and self-determined contingent points, which children awarded themselves after performance. In a condition in which children self-determined contingencies in advance of performance but had no training in how to set contingencies, the results were not significantly greater than the control. In Experiment II, contingencies were introduced for a longer period of time to two fifth-grade classes using a history facts curriculum. The comparable increases in test performance through externally determined and self-determined contingencies set in advance of performance when children were trained in contingency selection maintained over the three weeks. It was suggested that self-management that includes self-determined contingencies of reinforcement procedures may provide useful techniques for the classroom. (Author)

The Effectiveness of Behavioral Self-Management Procedures in the Classroom

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Behavioral self-management may become an important classroom technique if it is shown that by increasing children's control over their academic and social behaviors their education is facilitated. Studies of behavioral self-management by children have typically introduced multi-faceted programs. These programs often include some or all of the behavioral components outlined by Glynn, Thomas, and Shee (1973): self-assessment, self-recording, self-determination of reinforcement, and self-administration of reinforcement.

A major consideration in the analysis of what constitutes effective self-management is the comparison of self-determined to externally determined contingencies of reinforcement. There are discrepancies in the results of studies which may be related to the procedure by which the individual determines a contingency of reinforcement. In one procedure, the child performs a target behavior and immediately afterwards decides on the amount of tokens to self-award. Of those studies using this procedure which compared self to external determination equivalent effects were obtained for performance on multiple choice tests (Glynn, 1970) and on a discrimination task (Johnson & Martin, 1973). The results of other studies including this procedure but without the comparison to external determination indicate its effectiveness in (a) maintaining on-task classroom behaviors at the high levels previously established with externally imposed reinforcement (Bolstad & Johnson, 1972; Drabman, Spitalnik, & O'Leary, 1973; Glynn, Thomas, & Shee, 1973); (b) increasing on-task classroom behaviors with a cueing procedure in which a chart indicated on-task behaviors (Glynn & Thomas, 1974; Thomas, 1976); (c) improving the quality of children's written stories as well as increasing specific target writing responses (Ballard & Glynn, 1975).

Other studies have employed a second procedure for self-determination of contingencies in which the child sets a contingency of reinforcement in advance of performance. Findings in this area conflict as to whether self-management using self-determined contingencies is more effective, equally effective, or less effective compared to procedures using externally determined contingencies. Greater effectiveness of self-determined procedures was reported by Lovitt and Curtiss (1969). The 12 year old student improved his academic response rate more when he managed the contingencies rather than his teacher. Equal effectiveness of self-determined and externally determined contingency procedures was found in comparing groups of children by Bandura and Perloff (1967) and Felixbrod and O'Leary (1973, 1974). Children who chose the performance levels at which they would give themselves tokens performed as well on a motor task as yoked children who had the same contingencies externally imposed (Bandura & Perloff, 1967). Similarly, children who chose their own performance levels performed as well on arithmetic computation problems as yoked children who had the same contingencies externally imposed (Felixbrod & O'Leary, 1973, 1974). Lesser effectiveness of self-determined contingencies was found in a classroom study by Wall and White (1976). While self-management using self-determined contingencies of reinforcement significantly increased the steps completed in language arts, a further significant increase was found when these students had externally determined contingencies. The results were thought to be related to the much more lenient reinforcement schedules which students selected when they managed the unrestricted points.

In summary when children determined points after performance, the two studies making the comparison between self and external determination found equivalent effects. When childrendetermined contingencies of reinforcement

in advance of performance, studies had inconsistent findings for this comparison.

The studies which employed contingencies set in advance of performance and found equivalent effects had yoked the children under externally imposed contingencies to standards self-determined by other children (Bandura & Perloff, 1967; Felixbrod & O'Leary 1973, 1974). This procedure may not provide the most appropriate contingencies for the individuals in the externally imposed condition. The comparison of contingencies externally determined according to each individual's performance (rather than yoking) to self-determined contingencies is not addressed by these studies. This latter procedure for externally determined contingencies was employed in the present research.

The purpose of the present research was to investigate and compare the effectiveness of self-management procedures in which children set contingencies in advance of their performance to the efficacy of procedures using contingencies externally determined in advance and to procedures in which children self-determined points after performance. Since a tendency for children to select lenient performance standards had been noted in some of the prior studies (Felixbrod & O'Leary, 1974; Lovitt & Curtiss, 1969; Wall & White, 1976), the effects of training children in contingency selection were also investigated.

Another way in which the present study differed from prior studies was in the extent of the "self-determination" of contingencies. In previous research, children were often allowed to choose the amount of token reward themselves, but experimenters often limited this choice to a narrow range and frequently selected the nature of the back-up reward. The present research provided greater self-determination of reinforcement through a

broader range of points and a variety of back-up reinforcers utilizing student suggestions.

EXPERIMENT I

Method

Subjects and Setting

The subjects were 105 fourth-grade students from two public schools in a suburb of New York. Five classes were randomly assigned to conditions. The predominately white upper-middle socioeconomic status children were in heterogeneous classes of 19 to 24 students. Data analyses excluded eight students who either had a knowledge of Spanish words which was part of one task, or were absent more than one out of three baseline or contingency sessions.

The children ranged in age from 8 years 11 months to 10 years 10 months, averaging 9 years 11 months during the middle and end parts of the Spring term when the study took place. Classes did not differ significantly on IQ scores (overall mean IQ in the bright normal range = 113.63, SD = 13.69) nor did classes differ significantly on reading achievement (overall mean = 69.36 percentile, SD = 25.20).

Materials

An experimenter constructed curriculum was used which consisted of materials unfamiliar to the students according to teacher report and classroom curriculum. To control the difficulty of materials across sessions, the materials were randomly assigned to study units. Students in all conditions received the same curricular materials on each baseline or contingency session. The content of the materials differed from session to session without repetition. The same experimenter (white female in mid-twenties)

distributed materials and gave instructions for all conditions.

Study units. At the beginning of each session, the students received a packet consisting of five study units. Each study unit contained a set of facts, a set of word pairs, and a passage for reading comprehension. Within each study unit the order of appearance of the set of facts, set of word pairs, and reading passage was randomized.

Each set of facts consisted of five chronologically related historical facts derived from The Timetables of History by Bernard Grun. A key word was underlined in each fact. An example of two of five historical facts in a set follows:

In the years 400 to 500 A.D.:

The last Roman troops left Britain in 436.

St. Augustine wrote "The City of God."

Each set of word pairs consisted of five pairs of Spanish nouns with their English translations derived from a listing of the most frequently used words in both languages (Spanish: 3100 Steps to Master Vocabulary by William Jassey). The first two pairs shared a common relationship and the second three pairs shared a different common relationship. An example of two of the five Spanish-English pairs in a set follows:

carne -- meat

hortaliza -- vegetable

The above tasks were designed along the lines of the educational strategy of exposing students to new facts or words which might later be applied during reading assignments or classroom lessons.

Passages for reading comprehension were modified from the Barnell Loft Specific Skills Series by Richard Boning, Intermediate Levels C and

D, Getting the Facts and Locating the Answers. Each passage was approximately 110 to 150 words in length. Students read the passages in the study units. Five comprehension questions on each passage later appeared in the recall test.

The packets for each session thus contained five study units. Each packet consisted of a total of five sets of five historical facts (25 historical facts), five sets of five word pairs (25 Spanish-English word pairs), and five reading passages (on which a total of 25 comprehension questions were asked in the tests). These numbers of items were in excess of what the children could learn and recall during the brief time for studying each session to avoid the occurrence of a ceiling effect in the research.

Tests. Tests contained questions which corresponded to the study units that session. With each set, the facts and word pairs were randomized so that the study units and test questions did not correspond in the order of items. Test questions required recall of the underlined word in historical facts:

In the years 400 to 500 A.D.:

St. Augustine wrote "The _____ of God."

The last Roman troops left _____ in 436.

and the English meaning of the paired Spanish word:

carne -- _____

hortaliza -- _____

as well as details from the reading passages:

The seaman took hold of the _____.

What was the name of the ship struck by a whale?

The test for each packet consisted of 75 items: 25 historical facts, 25 Spanish-English word pairs, 25 reading comprehension questions.

Procedure

Baseline orientation. One week prior to baseline, an orientation session provided a brief explanation of the program and gave students practice with the materials and procedures. A short sample illustrated a study unit, test, and answer sheet. Students studied, were tested, and checked their answers on a practice packet.

Baseline. Baseline sessions were held on three consecutive mornings. Baseline and contingency sessions were the same in every respect except the presence of the point systems. Students were instructed to learn as much as they could on the study units and were reminded that they would have questions to answer. Students could review or work on other school work if they finished early. Twelve minutes were provided for studying the units. Units were then collected and followed by a twenty minute testing period which was sufficient time for all students to write their answers.

In all conditions, children wrote their answers to the test questions on answer sheets which produced a copy. After the students' original answer sheets were collected, the correct answers were distributed so that students could check their own answers against the correct answers. The original answer sheets were separately scored by the experimenter and these results were used for data analyses and assessment of the accuracy of student self-assessment.

On record sheets, each student self-recorded the total number of correct answers. The same record sheet was given to each child on successive

sessions so that each student had a record of his or her own number of correct answers for all prior sessions.

Contingency orientation. An orientation took place immediately prior to the first session under contingencies. The relationships between contingencies, point accumulation, and the activities period and chances for prizes were briefly explained except in the control condition. Students were informed that a maximum of 300 points could be saved for each of the three days under contingencies for a total maximum of 900 points. Of the saved points, 450 would be required for the full hour of the activities period and extra points could be used for raffle chances for inexpensive prizes.

Contingencies. Contingency sessions were held on three consecutive mornings of the week following baseline. An activities period for redemption of points was held on the final school day the same week. The activities and prizes were selected from student suggestions on a written survey in each condition. Raffle prizes consisted of three inexpensive gifts within each condition.

Contingency procedures differed according to conditions. A separate class was randomly assigned intact to each of the following conditions:

1. Externally determined contingencies set in advance of performance -- On the basis of the individual's baseline scores, the experimenter assigned the number of points that each child would receive for each correct answer during contingency sessions. The points were set by the experimenter so that students would obtain 70 to 80 percent of the maximum points (300) for maintaining their average baseline performance on any given session under contingencies. Every student could thus earn the activity period if they maintained or improved test performance. After self-assessment and self-

recording their total number of correct answers each session, students calculated how many points they earned by multiplying the points set for each correct answer (written on their record sheets in advance by the experimenter) by the total number of correct answers.

2. Self-determined contingencies set in advance of performance with training -- With knowledge of previous test scores through their individual records, each student rather than the experimenter set the number of points which he or she would receive for each correct test answer at the beginning of each session under contingencies.

Prior to the first contingency session, an additional brief training (12 minutes) focused on a way to set the points for increasing test performance. Students were given a supplementary chart which indicated the different points set for each answer and corresponding number of correct answers needed to earn the maximum points. Training consisted of a brief lecture and practice exercise on graphing test scores, setting individual goals for total number of correct answers, and selecting corresponding point contingencies for those goals using the chart. At the beginning of each session under contingencies, students were given the supplementary point chart and graph, reminded of the goal and point correspondence, and allowed to set their criterion for that session.

3. Self-determined contingencies set in advance of performance without prior training -- The same procedure was used as in 2. without the training or chart for contingency selection.

4. Self-determined contingent points after performance -- With knowledge of previous and current test scores through individual records, each child self-awarded a total number of points at the end of each contingency

session based on what the individual thought he or she earned. Students were reminded at the beginning of each contingency session that each individual would be giving himself or herself points afterwards.

5. Control -- Students had feedback on test performance through self-assessment and self-recording but did not have contingencies of reinforcement. Students were not given points on a daily basis but were noncontingently given an "inheritance" of a total number of 900 points at the end of the final contingency session.

Results

Total Test Performance

Number correct: comparisons between conditions. The mean number of correct answers during the contingency sessions were adjusted according to the results of the analyses of covariance for baseline test scores and IQ and can be seen in Table 1. A significant treatment effect was found (F (4,93) = 3.61, $p < .05$) using one-way analyses of covariance with two covariants (average baseline total test scores and IQ scores).

Using Scheffé contrasts, externally determined contingencies, self-determined contingencies set in advance with training, and self-determined points which children determined after performance were significantly more effective in increasing test scores than controls ($p < .05$) but not significantly different from each other. The condition in which children self-determined contingencies in advance without training was not significantly different from the control condition or the other three conditions.

Table 1

Mean and Standard Deviation Test Scores, Mean Gain, and Adjusted Mean by Condition

Condition	Baseline Average		Contingencies Average		Gain over Baseline	Significance of Gain
	$\bar{X}$	SD	$\bar{X}$ ($\bar{X}_{Adjusted}$[1])	SD		
1. Externally determined contingency	23.53	11.37	27.49 (23.97)	10.98	3.96	($t[19] = 6.05$, $p<0.001$)
2. Self-determined contingency with training	16.71	8.14	21.21 (24.02)	9.31	4.50	($t[18] = 5.41$, $p<0.001$)
3. Self-determined contingency without training	18.33	12.69	20.97 (22.28)	12.60	2.64	($t[23] = 3.08$, $p<0.005$)
4. Self-determined points after performance	18.74	7.35	23.65 (24.58)	8.46	4.92	($t[19] = 4.99$, $p<0.001$)
5. Control	21.24	12.41	21.21 (19.81)	10.33	-0.03	($t[22] = 0.03$, $p=0.976$)

[1] Note. Adjusted for Baseline and IQ Scores. Overall Baseline Mean = 19.74.

Number correct: effects within conditions. The differences between experimental and control conditions can also be seen in how students' performances in each condition differed from baseline to contingency sessions. Paired observation t-tests were used to evaluate the effects of procedures within the conditions. A significant increase in number correct from baseline to contingency sessions was found within every experimental condition. No significant change in total test performance was found within the control condition. These findings can be noted in the gains from the baseline to contingencies (see Table 1) as well as in the mean scores by session. The distribution of gains for individual students indicated that the mean gains accurately reflected the performance of students within conditions.

The experimental groups which had significant increases over baseline and in comparison to the control condition improved in both the number of items which children were attempting (i.e., writing in answers) and their accuracy (number correct compared to number attempted). In all contingency conditions the mean number of points earned each session under contingencies was quite high (over 200 to a maximum of 300 points).

Test Performance in Task Areas

Gains in the total number of correct answers were due to increases in scores on the reading items ranging from mean gains = 2.68 to 4.04, paired observation t-tests, $p < .01$). Performances on the history facts and Spanish-English word pairs were not significantly different (history facts, mean gains = -0.65 to 1.17; and Spanish-English word pairs, mean gains = -0.27 to 1.11).

There were no significant changes in the total number of correct answers for the control condition. This lack of change was the result of lower scores on history facts (mean gain = -1.00) and Spanish-English word pairs (mean gain = -1.00) combined with a significant increase in reading items (mean gain = 1.97, $p < .01$). This significant increase in reading items was questionnedas a possible effect from feedback. Therefore a supplementary control condition was introduced in an additional class in which procedures excluded feedback through self-assessment and self-recording but results were par allel to the control condition.

The finding that only reading scores had improved was of concern in terms of the generalizability of the procedures. Therefore, an additional class in one of the schools self-determined their own points in advance of performance specifically for correct Spanish-English word pairs on the tests. The results supported the generalizability of the procedure to specific tasks since the Spanish-English test scores increased significantly under the contingencies (mean gain = 3.27, $p < .01$). Significant increases were also obtained on the reading items (mean gain = 1.60, $p < .01$) but not on the history facts.

EXPERIMENT II

Comparable increases were found in Experiment I when children had contingencies set in advance which were externally determined or self-determined with a brief training. A second experiment was then carried out to determine the stability of these findings over a longer time (three weeks).

Since the effectiveness of contingency procedures on children' performance in history had not been demonstrated in Experiment I, a curriculum based only on the historical facts was introduced in Experiment II.

Experiment II also used a different population, urban fifth-grade children of average rather than high average mean IQ scores.

Method

Subjects and Setting

The subjects were students from two fifth-grade classes in a New York City parochial school. The school population was heterogeneous in composition with 67% white, 13% black, 12% Spanish background, and 8% Oriental students.

The study was conducted during the middle part of the fall term. The study included 62 students: 31 in each condition (16 female; 15 male). The data analyses excluded 7 other students who were absent more than one out of three sessions during any week in baseline or contingencies and one student for whom there was a ceiling effect on the tests. The children ranged in age from 9 years 9 month to 11 years 8 months with an average age of 10 years 4 months at the time of the study. The heterogeneously grouped classes did not differ significantly on IQ scores (overall mean = 106.39, SD = 10.08), or reading achievement (overall mean = 57.90 percentile, SD = 25.15).

Materials

Historical facts of the same form described in Experiment I were used as well as similar recording and reinforcement materials.

Each session students received a packet consisting of 7 sets of historical facts. There were 5 facts in each set for a total of 35 facts. Tests contained questions which corresponded to the 7 sets in each packet for a total of 35 test items per session.

Procedures

Procedures were similar to Experiment I with the following modifications:

Baseline. Students had 4.5 minutes for studying and 10 minutes for testing. Three baseline sessions were held on alternate mornings in one week (a practice session had been held a week prior).

Contingencies. The contingencies were instituted for three consecutive weeks beginning the week immediately following baseline. Each week three sessions were held on alternate mornings. Students were informed that a maximum of 100 points could be obtained each session, and their points could be saved over the three sessions that week under contingencies. Of the saved points each week 150 were required for the full half-hour activities period and extra points were used for chances for two prizes in the drawing at that activities period.

The points set by the experimenter for the externally imposed contingencies were again based on individual student's baseline averages so that students would obtain 70 to 80 percent of the maximum points (100) for maintaining their average baseline performance on a given session of contingencies.

The training in contingency selection was similar to that in Experiment I, except for the exclusion of graphing and addition of a third practice example.

Results

There were no significant differences in the effects of external and self-determined contingency conditions using Repeated Measures ANOVA on the mean test scores for successive weeks (F (1,60 = 0.52,N.S.). However, highly significant increases were found from baseline to contingency weeks for both conditions. The higher mean test scores under contingency weeks and the gains over baseline can be noted from Figure 1.

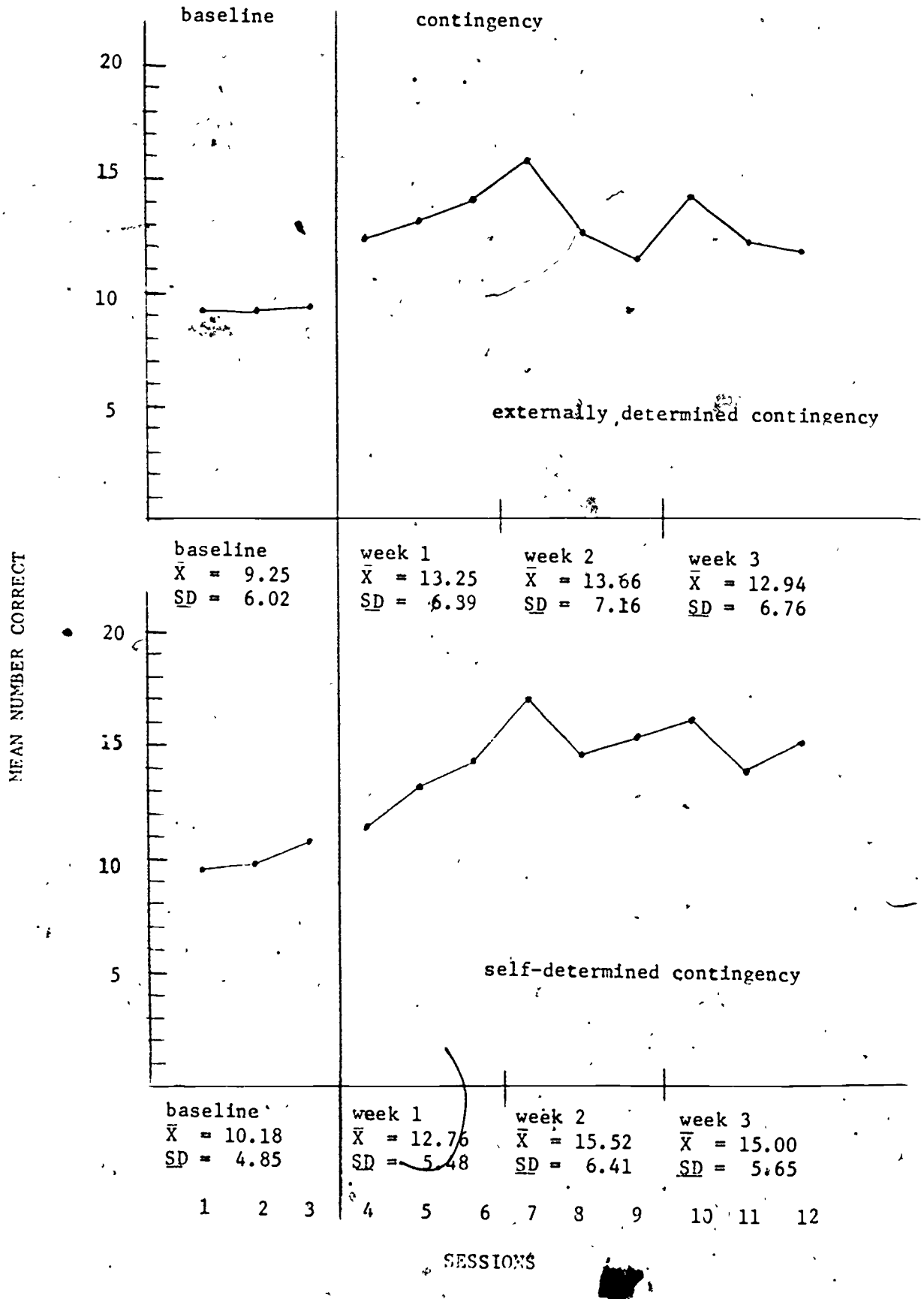

Figure 1. Mean number correct by sessions and conditions for the history curriculum

Under both the externally determined and self-determined contingencies, the mean number of points earned on each contingency session was high. Mean points ranged in sessions from 84 to 98 points out of a possible 100 points.

Discussion

The present research indicates that all three contingency procedures investigated improved academic test performances of children. With a brief training in contingency selection, students set contingencies in advance of performance which were as effective as those set by the experimenter. A simpler procedure, self-determination of points after performance was also effective.

In assessing the effectiveness of self-management procedures in academic situations the generalization of the self-management skills and their effects across different subject areas and over time are important. In Experiment I the effects of different types of self-determined contingencies and externally determined contingencies were not found equally across all tasks. While the contingencies were based on total test scores, significant improvements were obtained only in the reading items and these were found for all conditions including controls. Differences between conditions were obtained partially due to the fact that there were decreases in the history facts and Spanish-English word pairs for the control students. One possible explanation for these discrepancies in task areas is that the students may have increased their performance on the easier task (since more reading items were also answered correctly in baseline sessions) while only the students under reinforcement contingency conditions

maintained their performance on the two more difficult tasks. However, increases in Spanish-English word pairs were found when a self-determined contingency specifically for the number of correct Spanish-English word pairs was introduced for children who studied the curriculum containing all three tasks. Significant increases in historical facts were found in Experiment II when children self-determined a contingency in advance of performance using a curriculum of only the historical facts. Thus performance on all tasks improved with the appropriate contingencies.

In addition to the generalization of the effects of self-determined contingency procedures across academic tasks another concern is whether effects will be maintained across time. In Experiment II, children who set contingencies in advance of test performances after a brief training maintained their increase in the number of correct answers over a three week period. Maintenance over longer terms should be studied.

An important consideration in implementing self-management procedures is the reliability of children's self-assessment and self-recording. In the present research there was a high degree of agreement between children's scoring of their correct answers and the experimenter's scoring. Agreement ranged from .90 to .96 across conditions in both experiments (agreed number correct test answers/agreed + disagreed). In evaluating children's use of self-management, the extent of individual rather than experimenter selection in the determination of contingencies should be taken into account. Greater self-determination of contingencies was introduced in the present research through broader point systems. Future research should assess the effects of training in contingency selection as a function of the parameters of self-reward since children might require training more when there is greater self-determination than when points are limited. The present research also

utilized back-up reinforcers which students suggested. The back-up activities and prizes were highly rated by the students in both experiments. The reinforcement activites and prizes were high rated as "pretty good" or "really great" by 87% - 100% of the students in all experimental and control conditions. Results from rating scales also indicated that most students (71% - 81%) reported that working for points and the activities period "often" or "usually" helped them work harder in all contingency sessions.

Effective self-management procedures could have several possible implications for classroom instruction. Self-management procedures may be useful for providing students with feedback and reinforcement to a greater extent than a single teacher would be able to provide in certain situations. For example self-management procedures may be useful when there is a large degree of individualization of instruction or for increasing specific on-task behaviors (i.e. class participation in discussions, completion of assignments) for a class or particular children in a class. Specific contingency procedures may be found to be most effective and possible to implement according to instructional situations. For example, contingencies which are self-determined in advance may be particularly effective within personalized or programmed instruction or for assignments in which behaviors are discrete and advance planning and goal setting is helpful, while self-determined points after performance may be preferable for larger less regularly quantified behaviors.

Since the procedures encourage management by the students rather than requiring more adults in the classroom or substantially increasing the teacher's tasks, self-management may offer a cost-effective technique for education. Finally, there is a possibility yet to be substantiated by future research that through the introduction of self-management proce-

dures to the classroom, students will improve their self-management skills in a way which will encourage the transfer of these skills to increase their learning across different environments.

References

Ballard, K. D., & Glynn, E. L. Behavioral self-management in story writing with elementary school children. Journal of Applied Behavior Analysis, 1975, 8, 387-395.

Bandura, A., & Perloff, B. Relative efficacy of self-monitored and externally imposed reinforcement systems. Journal of Personality and Social Psychology, 1967, 7, 111-116.

Bolstad, O. D., & Johnson, S. M. Self-regulation in the modification of disruptive classroom behavior. Journal of Applied Behavior Analysis, 1972, 5, 443, 454.

Boning, R. A. Specific Skills Series. Baldwin, N.Y.: Barnell Loft, Ltd., 1963.

Drabman, R. S., Spitalnik, R., & O'Leary, K. D. Teaching self-control to disruptive children. Journal of Abnormal Psychology, 1973, 82, 10-16.

Felixbrod, J. J., & O'Leary, K. D. Effects of reinforcement on children's academic behavior as a function of self-determined and externally imposed contingencies. Journal of Applied Behavior Analysis, 1973, 6, 241-250.

Felixbrod, J. J., & O'Leary, K. D. Self-determination of academic standards by children: toward freedom from external control. Journal of Educational Psychology, 1974, 66, 845-850.

Glynn, E. L. Classroom applications of self-determined reinforcement. Journal of Applied Behavior Analysis, 1970, 3, 123-132.

Glynn, E. L., & Thomas, J. D. Effect of cueing on self-control of classroom behavior. Journal of Applied Behavior Analysis, 1974, 7, 299-306.

Glynn, E. L., Thomas, J. D., & Shee, S. M. Behavioral self-control of on-task behavior in an elementary classroom. Journal of Applied Behavior Analysis, 1973, 6, 105-113.

Grun, B. The Timetables of History. New York: Simon & Schuster, 1975.

Jassey, W. Spanish: 3100 Steps to Master Vocabulary. New York: Language Arts Publishing Co. Arc Books Inc., 1967.

Johnson, S. M., & Martin, S. Developing self-evaluation as a conditioned reinforcer. In B. Ashen & E. G. Poser (Eds.) Behavior Modification with Children, N.Y.: Pergamon, 1973.

Lovitt, T. C., & Curtiss, K. A. Academic response rate as a function of teacher- and self-imposed contingencies. Journal of Applied Behavior Analysis, 1969, 2, 49-53.

Thomas, J. D. Accuracy of self-assessment of on-task behavior by elementary school children. Journal of Applied Behavior Analysis, 1976, 9, 209-210.

Wall, S. M., & White, M. A. Effects of Self-Determined and Teacher-Determined Contingencies of Reinforcement Upon Children's Response Rates in Language Arts. Unpublished paper, 1976, Teachers College, Columbia University.