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AUTHOR Galbreath, Joy; Feldman, David
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ABSTRACT

The relationship of reading comprehension accuracy and a contingently administered token reinforcement program used with an elementary level learning disabled student in the classroom was examined. The S earned points for each correct answer made after oral reading sessions. At the conclusion of the class he could exchange his points for rewards. Results after two baselines and two intervention periods on a reading series, "Reading for Concepts: Level A," indicated that the S substantially improved his reading comprehension accuracy during the token reinforcement program. Overall, he improved his comprehension accuracy 92% over the first baseline phase and 60% over the second baseline phase. (CL)

The Effect of a Token Reinforcement Program on the Reading Comprehension of a Learning Disabled Student

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Joy Galbreath
Graduate School
The University of Tulsa

David Feldman
The Division of Communicative Disorders and Special Education
The University of Tulsa

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In many expository articles as well as in research investigations which have focused on improvement of student performance in reading-related target behaviors, the foci have been on greater sophistication of instructional methodology (e.g., Goodman & Burke, 1980; Kirk, Kliebhan, & Learner, 1978; Smith, 1978), and to a lesser extent the role of motivational variables in the reading process (e.g., Cohen & Plaskon, 1980; Feldman, 1981; Lovitt, Guppy, & Blattner, 1969). When antecedent practices, such as highly specific instructions, have been directed toward the student prior to the commencement of silent reading, performance on passage comprehension appears to be influenced. In a study by Berman (1973), effective teacher instructions was demonstrated to have a significant positive effect on student comprehension accuracy.

Several investigators have reported the application of antecedent tutoring procedures to improve the reading performance of disabled students. Cloward (1967), Hassinger and Via (1969), Robertson (1972), as well as Chiang, Thorpe, and Darch (1980) found that tutoring improved the reading performance of the students as well as the reading performance of their tutors.

While antecedent events such as tutoring, high interest-low vocabulary texts, improved teacher directions, and sophisticated classroom instructional technology, e.g., whole language approaches (Goodman & Burke, 1980), consequent events based on principles of reinforcement have received relatively little attention in the related literature. However, a few studies have demonstrated the potential of reinforcement (i.e., rewards) in improving student performance on reading comprehension tasks. Lahey, McNees, and Brown (1973) found that the distribution of praise and pennies contingent on the correct answers for reading comprehension substantially improved student comprehension accuracy even though these students' comprehension levels were two years below their

same grade level peers. Ayllon and Roberts (1974) noted that the rewarding of reading performance not only improved reading-related behaviors but also appeared to effect a clear reduction of classroom discipline problems.

Although a number of articles appear supportive of the employment of antecedent activities and consequent events, based on the principles of reinforcement, to positively influence the acquisition of reading skills for disabled learners (e.g., Cohen & Plaskon, 1980; Kirk et al., 1978), a relative paucity of research is available to support the validity of such procedures in the applied setting of a multi-student classroom. The purpose of this study was to investigate, within a classroom environment, the relationship between reading comprehension accuracy and a contingently administered token reinforcement program employed on an elementary level learning disabled student.

METHOD

Subject

The subject of this study was a ten year old male student, functioning in the average range of intelligence, reading two years below his present grade level placement even though he had been retained the previous year. He had been placed in the learning disabilities lab for reading instruction, notably in passage comprehension. His assessed strengths, according to standardized diagnostic tests, were in the areas of auditory learning. He was observed by his academic classroom teachers to have motivational problems especially on reading-related tasks.

Setting and Apparatus

This study was conducted in a learning disabilities lab in an urban elementary public school. Five other students were also being served during the same period of time. The reading series, Reading for Concepts: Level A, which includes comprehension questions at the end of each selection, was used.

In order to determine which activities might be reinforcing for this particular student, a reinforcement survey was administered and a reinforcement menu was subsequently developed from the student's responses to the reward preferences survey.

Behavior Measures

The behavior measured was the accuracy in answering the seven comprehension questions at the end of the Reading for Concepts: Level A selections. After reading the selection, the subject was to write only the answers to the seven questions. The only assistance given to the student by the teacher was in pronouncing and understanding the vocabulary words preceding each story. The teacher then charted the permanent product and recorded it on a daily basis.

Procedure

Using an ABAB reversal design (Cooper, 1981), baseline data was collected for one week. During this phase the permanent product of charting the correct answers was tabulated on ten articles. The student's comprehension accuracy ranged from 14 per cent to 86 per cent correct. The teacher, using a graphic menu example in talking with the student, explained how he might be able to improve his comprehension scores and how the choice of menu items, contingent on various levels of accuracy, would be added incentive to do well.

The next day the first phase of intervention was commenced. The teacher assisted the student as she did in the baseline phase in pronouncing and in understanding the definition of the preliminary vocabulary words given with each lesson. Then the student read the article aloud with the teacher giving assistance with word attack of unknown words. The selection content per se was not discussed.

Following oral reading of the selection, the student read aloud the questions and wrote down the answer he believed to be correct. The teacher assisted only with word attack. At the completion of each assigned passage,

the teacher marked the answers writing the number of correct answers at the top of the student's paper. The number of correct answers was then charted. Incorrect responses were ignored in recording and charting. Two selections were accomplished in each class session. According to the number of correct answers, the child earned points; for each correct answer he earned one point plus five bonus points if 12 answers out of 14 possible were correct. Ten bonus points were awarded if all 14 comprehension questions were answered correctly within the 30 minute period. During the remainder of the class period, fifteen minutes, he was allowed to cash in his points through the reward menu. He was permitted to receive half credit for correcting answers which had been missed. The first intervention phase lasted one week.

After the one week intervention phase, a return to baseline conditions was implemented for the next five school days. During this period, all token system procedures such as points, bonus points, and the reinforcement menu were dropped for the one week reversal condition.

Five school days later, the token reinforcement program was reinstated for the student's comprehension accuracy. This second intervention period also lasted one week.

RESULTS

The results indicate that the student substantially improved his reading comprehension accuracy during the experimental phases. The student's baseline frequency count of correct comprehension responses ranged from one to six, ($\bar{x}$ = 3.5) out of seven possible correct. Out of 70 possible responses over the ten baseline selections, he was correct on 35 responses ($\bar{x}$ = 50%). During the first intervention phase, his range narrowed to six to seven ($\bar{x}$ = 6.7) correct responses per selection. Out of 70 possible responses over the ten selections in the first intervention phase, he was correct on 67 responses ($\bar{x}$ = 96%). The second baseline was fairly consistent with the

results of the first baseline phase. His frequency count of correct responses ranged from two to seven ($\bar{x}$ = 3.8) out of seven possible responses. Out of 70 possible responses, he was correct on 38 responses ($\bar{x}$ = 54%). When the intervention was reinstated, his range narrowed again to between four and seven ($\bar{x}$ = 6.1) correct responses out of seven possible correct. Out of 70 possible responses over ten selections, he was correct on 61 responses ($\bar{x}$ = 87%). Figure 1 presents the student's comprehension accuracy over the 40 selections presented during the investigation.

Insert Figure 1 about here

DISCUSSION

The results of this study provide strong evidence that the subsequent events in the form of a reinforcement survey and a reinforcement menu combined with backup reinforcers and trading points as consequent events improved the student's accuracy on comprehension questions. An examination of the results from the two baseline conditions and the two treatment conditions demonstrated predictable depressed comprehension scores across the baseline phases (e.g., 50% and 54% accuracy) and predictable elevated comprehension scores across the treatment phases (e.g., 96% and 87% accuracy). On combined baseline data, the student responded accurately to the comprehension questions 73 times out of a possible 140 responses (52%). On combined treatment data, the student responded accurately to 128 comprehension questions out of a possible 140 responses (91%). Overall, the student improved his comprehension accuracy 92 per cent over the first baseline phase ($\bar{x}$ = 3.8/7 versus 6.1/7) and 60 per cent over the second baseline phase ($\bar{x}$ = 3.5/7 versus $\bar{x}$ = 6.7/7).

Future research in the area of the relationship between subsequent and consequent motivational variables and the acquisition of reading-related skills should address such topics as the potency of reinforcement on other

reading-related skills (e.g., following written directions, using the context, getting the main idea, characterizations, sequence of main events, and story retelling). Participant populations for these investigations should include able readers as well as disabled readers across a broad chronological age range.

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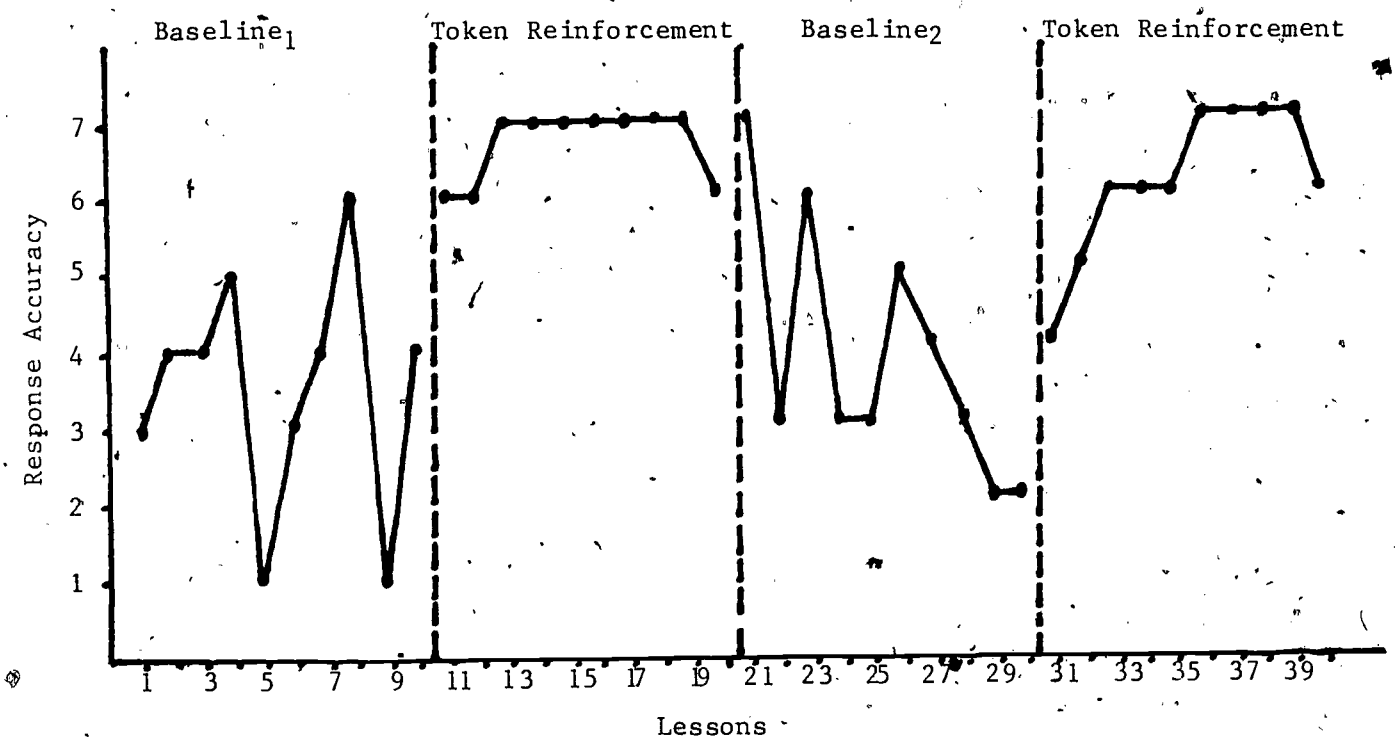

Figure 1. Subject's comprehension response accuracy over 40 lessons across four conditions.

Reinforcement Survey

1. Name, school, class, age, grade, gender.
2. What are your 3 favorite "choose time" activities in this class?
3. What are the 3 jobs in this room that you would like to do most often?
4. If you had a dollar to spend, how would you spend it?
5. The school subject that I like best is _____.
6. At recess, I like to _____.
7. If I had 30 minutes to choose my activity, I would _____.
8. My three favorite candies are _____, _____, and _____.
9. The three things I would like someone to say when I do my work well are: _____, _____, or _____.
10. The three people I like doing things with at school are _____, _____, and _____.
11. Three things people do that I don't like are _____, _____, and _____.
12. The things I enjoy in rank order of 1 - 5 are:

_____Reading library books

_____Drawing with colored chalk

_____Cleaning erasers with eraser vacuum

_____Taking a message to another teacher

_____Listening to taped story

_____Listening to taped music

_____Modeling with clay

_____Building with Lego

_____Using stapler

_____Using teacher's chair

_____Using felt tipped markers

_____Making Domino-tipping design

13. My favorite foods in rank order of 1 - 5 are:

_____Cheerios

_____Cookies

_____Gum

_____Milk

_____Oranges

_____Raisins

_____Sunflower seeds

_____Cheese cubes

_____Apple slices

_____Pickle slices

_____Oyster crackers

_____Popsicles

_____Popcorn

14. Three things that I would like to learn how to do or to do better are: _____, _____, and _____.

15. My three favorite TV shows are: _____, _____, and _____.

16. Three things that I like to do at home are: _____, _____, and _____.

17. My favorite games in rank order of 1 - 5 are:

_____"I Forgot"

_____Dominoes

_____Checkers

_____Social Security

_____Scrabble

_____Memory

_____Spill and Spell

_____Puzzles

_____Mazes

18. Another student whom I would like to have help me is _____.