

A Study on the Education of a Student with Behavior Problems: the Effect of Graphing, Praise and Self-check on the Accuracy of Record Keeping

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ABSTRACT

A female high school junior had been dismissed in three different job situations in the school curriculum because of inadequate behavior. The author trained her in the record keeping of the student absence sheets. Graphing, praise and self-check were utilized for increasing the accuracy of her record keeping. The accuracy of her work increased to 98.3 percent during the praise and graphing condition from the baseline rate of 92.9 percent and increased further when self-check was added to this condition. In the follow-up, she maintained a high accuracy without much supervision, and concomitant positive behavior change was reported by her mother. Finally, concerning the education of the students with behavior problems, the author pointed out the importance of shaping the appropriate behavior of the students.

INTRODUCTION

The education of the students with behavior problems has been a big issue in schools these days. For example, the problem of juvenile delinquency even has been a social problem. Besides this particular case, we know the existence of many students who have pre-delinquent or inadequate behavior such as absenteeism, hyperactivity, smoking, not obeying teachers' instruction, etc. However, it seems that teachers are at a loss how to treat these students educationally.

Since the gravity of the problem differs from one student to another, a different treatment may be required for each of these students. However, past studies have not yet given sufficient answers

concerning the educational treatment of these students.

In the present study the author utilized the behavioral approach for the education of a female high school student with behavior problems.

The behavioral approach was given its theoretical framework by B. F. Skinner¹⁾. Since then, researchers have developed the methodology of study and the means of behavior modification through experimental and clinical studies on human behavior²⁾.

Concerning the education of the students with behavior problems, several studies were conducted

1) Skinner, B. F. *The technology of teaching*. New York: Meridith, 1968., etc.

2) Refer *Journal of Applied Behavior Analysis* (1965-present) for the overview of the history of the behavioral approach.

in special programs for "juvenile delinquents". Phillips (1968) improved the degree of punctuality of "pre-delinquent" boys and increased the amount of home work completion by utilizing token economy system.

In token economy, students receive a certain amount of tokens for the completion of the target response (e.g., home work). Then, later, they can purchase with tokens their favorite items (e.g., candy, a book, and watching TV), which have certain token values.

Phillips et al. (1973) also utilized token economy to teach "pre-delinquent" boys social, academic, self-help and pro-vocational skills. In the follow-up of the study, lower recidivism, better school attendance, and better passing grade in school were indicated when compared with those of "pre-delinquents" who had been committed to the probational institutions.

Furthermore, in Tyler (1967) and in Tyler and Brown (1968), token economy was successfully administered to improve the test performance of institutionalized "delinquents".

The rationale of all these studies may be that if these students acquire particular competences which help their adequate functioning, they can behave properly in their environment. Kazdin (1977) argued that delinquents often do not know how to function in a desirable manner. The author of the present study thought that this notion of Kazdin was also applicable to the subject of the present study and that it was important to teach her appropriate functioning.

According to the suggestion of the attendance teacher of the school, the author trained her in the record keeping of the student absence sheets.

After the training period, the subject started working with the actual absence sheets of the school. In order to increase the accuracy of her record keeping, three behavioral means were utilized. First, the graph of her accuracy was presented to her so that she could recognize her improvement (graphing). Second, the trainer praised her for high accuracy of the work (praise). Third, self-check of her own work was required for the correction of mistakes (self-

check).

These behavioral means were found to be effective in improving academic performance of the students without behavior problems (Van Houten and Van Houten, 1977; Kirby and Shields, 1972; and Spates and Kanfer, 1977). Therefore, the author expected that these means could also be effective with the subject of the present study.

Token economy, which is one of the most popular behavioral means, has shown its efficacy in teaching a variety of skills to the problematic students. However, it has certain disadvantages. One of the disadvantages is that the administration of token economy requires a considerable amount of the teacher's time. When compared with token economy, graphing, praise and self-check are not time consuming for the teacher.

For the subjects with severe behavior problems, rather complicated interventions such as family council and behavior contracting have been used (Phillips, 1975; and Stuart, 1971). Though these behavioral means may have very strong effects on the behavior of the subjects, they are more cumbersome and difficult to conduct than token economy.

Therefore, the author tried to suggest that simple behavioral means of graphing, praise and self-check could be effective with a certain range of population.

METHOD

Subject. The subject was Rhonda, female junior of a high school in the State of Illinois, the U.S.A. She had been achieving fair academic grades in school. However, Rhonda's work-related teacher mentioned that she probably had some behavior problem. She had been dismissed in three different job situations in the school curriculum mainly because she did not follow the instructions of the employers very well.

When the attendance teacher asked her what she thought about the new job (i.e., record keeping), she replied that she wanted to try it. She also agreed immediately that she worked with the trainer (i.e., the author).

Setting. All sessions were conducted in the library

ABSENCE SLIP Pearce

Hour 1 Class Conversational Spanish

Pupil Absent

~~Mix~~ Johnston ✓ (circled)

~~Dave~~ Layman ✓

~~Nancy~~ Bonn ✓

Form No. AS-8A—Supreme School Supply Co., Arcadia, WI 54612

Fig. 1. An absence slip used for the training.

	1	2	3	4	5	6	7
Bonn, Nancy	SP			LS			
Cooper, Donna				LS			
Ferritero, Eddy							Soc.
Hanklin, Reed						ALB	
Janston, Mix	SP				BE		Soc.
Kirby, Don					E		
Layman, Dave	SP					ALB	
Levine, Milce							
McMullen, Maltu	SP				GM		
Parks, Tom					GM		
Ranson, Kim						ALB	

Fig. 2. Part of a student absence sheet worked by Rhonda during the training period.

of the high school. The trainer and Rhonda sat at the same table near the corner of the library. Usually another ten to twenty students were studying at the library during the daily 2-hour session in the afternoon. When the noise made by the students was not kept at a minimum, the library attendant instructed them to study quietly.

Task and Training. Rhonda was trained to keep records during the 2-week training period in February 1978. The task was to compile the master sheets of student absence from the absence slips (see Fig. 1 and Fig. 2). The code of each academic subject and other necessary skills for the task were taught during the first week of this period. Quizzes and oral questions were administered frequently and each correct answer was reinforced with the trainer's praise. This training was continued until Rhonda succeeded in dealing with ten example slips three times in a

row without any mistakes. In most cases, there were the names of five students on each slip. During the next week, she worked with actual absence slips. At first, the trainer delivered praise or negative feedback on each subject's response. However, according to the improvement of the subject's skill, the interval of praise and negative feedback was gradually prolonged. At the end of the training period, Rhonda did very reliable work (only two or three mistakes per session).

Furthermore, the idea of shaping³⁾ was emphasized in this training. The criteria of the correct responses were changed gradually so that she could acquire the necessary skills while having full opportunities to receive the trainer's praise.

During the training period, Rhonda followed the trainer's instruction very well. However, she sometimes showed inappropriate behavior such as screaming when negative feedback was given. The trainer ignored these behavior to avoid reinforcing them by the trainer's attention.

Experimental Design. During the first phase after the training period, baseline data were measured (A). The first intervention was introduced during the next phase (B). Then, another intervention was administered immediately after the termination of the first intervention (C). In result, the experimental design employed in the present study was ABC design. However, this design is not a true experimental design, which assures the internal validity of the intervention⁴⁾.

Baseline Phase (A). After the training period, the recording of the response data was started. Rhonda worked by herself during the 4-day baseline period. She was instructed to work as accurately as possible. The trainer examined her work after each session and calculated the accuracy of her work. However, no feedback was given to her concerning the ac-

3) Shaping denotes to form the target behavior of the subject through changing the response class to be reinforced gradually toward the terminal response.
 4) Internal validity denotes that the change in the response is caused by the introduction of the intervention and not by extraneous factors.

curacy of her work during this phase.

Praise and Graphing Condition (B). The trainer sat at the table face-to-face with Rhonda. When she finished with a certain number of slips, the trainer examined her work and praised her if she had not made any mistakes. If she had made some mistakes, she was encouraged to work more accurately. After the session, the accuracy of her work in the whole session was calculated, and the figure was marked on the graph. At the beginning of the next session, this graph indicating the accuracy of her work was shown to her. Furthermore, her improvement over her original baseline accuracy was praised. Praise and graphing conditions were in effect for 12 days.

Praise, Graphing, plus Self-check Condition (C). Rhonda worked by herself during this phase, as she had during the baseline phase. The trainer met her at the beginning of the session and asked her to examine her own work, after she had finished with a certain amount of slips, and to correct any mistake she detected. The trainer also presented the graph of the accuracy and praised her for her accurate work, if the accuracy of her work on the previous day was above the average of the previous phase. After 4 days, graphing and praise for accuracy were terminated, and the trainer gradually faded out from the training. However, she was told to continue the self-check even after the termination of the trainer's intervention.

RESULT AND DISCUSSION

The average accuracy of Rhonda's work was 92.9 percent during the baseline phase. During the praise and graphing phase, the average accuracy increased to 98.3 percent (Fig. 3). This accuracy was fairly good when compared with the accuracy of the attendance teacher (i.e., approximately 99 percent in both of two measurements).

However, taking account of the characteristic of the work (i.e., the absence record of students), the accuracy of 100 percent was desirable. Rhonda's work was not yet sufficient from this point of view.

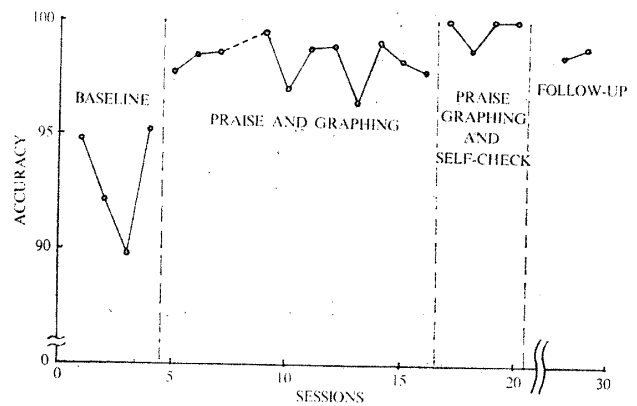


Fig. 3. Accuracy of Rhonda's record keeping in each session.

In ABA design and ABAB design, the baseline condition is restored to assure the internal validity of the intervention. However, in this case, a decline in the response must be expected during the second baseline phase.

In the present study, decrease in the accuracy of her work might have occurred, if the baseline condition had been introduced after the first experimental phase. However, the author considered that Rhonda's accuracy should be increased further, and that the withdrawal of the intervention was inappropriate in that situation.

Therefore, the second intervention (i.e., praise, graphing plus self-check) was introduced instead of the baseline condition, immediately after the first experimental phase.

During the praise, graphing plus self-check phase, Rhonda made only one mistake. Furthermore, two follow-up data were taken one week after the termination of the intervention. The data showed the maintenance of fair accuracy.

Because of the weakness of the experimental design, other factors such as training effect remained as the possible cause of the change in the response. However, since the variation of the data points in each phase was relatively small, and an upper trend of data points was not found in any phase, it seemed that the increase of the accuracy over the baseline phase was caused by the introduction of the praise and graphing condition and that nearly 100 percent accuracy was achieved by the use of the self-check.

It may be natural that the accuracy of the work increases if the self-check is properly conducted. However, in this study, the praise for the high accuracy of the work seemed to enable Rhonda's proper self-check.

Moreover, the school personnel concerned were satisfied with her performance when she conducted the self-check without much supervision and maintained a high level of accuracy in her record keeping during the follow-up period.

In addition, Rhonda's mother reported that Rhonda showed positive behavior change (i.e., willingness in helping domestic work) after she started the record keeping in school.

Strictly speaking, the efficacy of graphing, praise and self-check can not be generalized to other students with behavior problems since only one subject was treated in this study. However, the author felt that these simple behavioral means might be worth using for many others as the initial intervention and supplemental means.

Concerning the experimental design, ABAB design is better than ABA design because an intervention (B) takes place during the final phase of the experiment in the former. However, the expected decline in the response during the second baseline phase can still be very inappropriate in many practical situations. Therefore, ABAB design should be utilized after the fitness of the design to the target behavior and the characteristics of the subject is fully considered. Rather, multiple baseline across subject design is recommendable when more than two subjects can be obtained⁵⁾.

As only one subject was treated in the present study, the alternatives were multiple baseline across response and multiple baseline across setting except for AB type design. However, these two multiple baseline designs have a serious disadvantage that the generalization of the interventional effect makes the design meaningless. Therefore, if only one subject

will be treated, AB type design should be allowed in the situation where the use of another design is practically inadequate. AB type design is still better than case study, because baseline data are obtained.

Besides three behavioral means used for increasing the accuracy of the record keeping, the following components seemed critical for the successful treatment of the subject.

1. Trainer's praise for the appropriate responses of the subject during the training period.
2. No consequence for the inappropriate behavior of the subject to avoid reinforcing the behavior. (Any consequence such as scolding and coaxing can be a reinforcer for the inappropriate behavior.)
3. The use of the shaping procedure in training the subject to acquire the necessary skills for the record keeping.

Finally, the whole process of the present study could be regarded as a shaping procedure of teaching adequate functioning. Concerning the education of the students with behavior problems, the use of such a shaping procedure may be extremely important when the students do not have the appropriate behavior in their behavior repertoire.

CONCLUDING REMARKS

1. Graphing, praise and self-check seemed effective in increasing the accuracy of the subject's record keeping, though other possible causes of the increase could not be eliminated because of the weakness of the experimental design.
2. These behavioral means could be utilized for other students with behavior problems as effective means of teaching a variety of skills.
3. ABAB design may not be a desirable experimental design from a practical point of view. When more than two subjects are included, multiple baseline across subject is recommendable. However, with only one subject, AB type design should be allowed if the use of another design is not practically suitable.
4. Trainer's praise for the correct responses of the subject during the training period, no consequence

5) Concerning experimental designs for small number of subjects, refer Hersen, M. and Barlow, D. H. *Single-case experimental designs: strategies for studying behavior change*. New York: Pergamon, 1976.

for the inappropriate behavior of the subject, and the use of the shaping procedure for the training seemed critical components for the successful treatment.

5. Shaping the appropriate behavior of the students may be extremely important concerning the education of the students with behavior problems.

ACKNOWLEDGMENT

I worked with Ronda as my internship work while I was attending the Department of Behavior Modification in the Graduate School of Southern Illinois University.

I gratefully appreciate the help of Mr. Ronald G. Bittle who was my internship adviser.

I also acknowledge the cooperation of Mr. Bruce Bell of Anna community high school.

Finally, I would like to express thanks to Mr. Teruaki Shibawaka, Lecturer at the Department of Health and Physical Education, for his precious suggestions to refine the manuscript.

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