The Effects of Prompts and Feedback on Frequency of Teacher Referrals of Students to a Contract Study Center

Skinner

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THE EFFECTS OF PROMPTS AND FEEDBACK
ON FREQUENCY OF TEACHER REFERRALS
OF STUDENTS
TO A CONTRACT STUDY CENTER

by

Leslie Marie Skinner

A Specialist Project
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Specialist in Education
Department of Psychology

Western Michigan University
Kalamazoo, Michigan
April 1981
THE EFFECTS OF PROMPTS AND FEEDBACK
ON FREQUENCY OF TEACHER REFERRALS
OF STUDENTS
TO A CONTRACT STUDY CENTER

Leslie Marie Skinner, Ed.S.
Western Michigan University, 1981

Daily student referrals to a contract study center by seven high
school teachers were recorded for a total of 95 school days. A re-
versal design, consisting of various experimental conditions inter-
spersed between repeated baseline conditions, was used to determine
if the number of teacher referrals of their students could be in-
creased. Feedback was the only technique that showed minimum ex-
perimen tal control for the teachers that were able to return to
baseline. No clear differences were apparent in the effectiveness
between the prompting and feedback conditions. The procedures re-
sulted in an increased use of a contract study center by offering
students a structured study time during study hall or during within-
class work periods.
ACKNOWLEDGEMENTS

Initially, I wish to acknowledge a number of people who inspired the production of this thesis.

Much gratitude goes to my Thesis Committee Advisor, Dr. Howard Farris for his continuous moral, fraternal, and intellectual support throughout my graduate years. I sincerely appreciate the constructive input of Dr. Galen Alessi and Dr. Cheryl Poche for their sensitive understanding of my goals.

Many thanks go Bill Redmon and the staff of the Guided Study Project at Schoolcraft High School. Bill was an excellent resource person by spending so many hours reading revisions, sharing hopes and aiding in decisions to make this project possible.

Love goes to two "special" people: LaVerne, for cultural awareness, family support, and the countless hours of late night talks; and Ealvin, just because ...

Lastly, this thesis project is dedicated to my son Kyle, for his love was my continuous reinforcer.

Leslie Marie Skinner
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INTRODUCTION

Behavior analysts contend that a student should be considered an organism equipped with his/her unique genetic endowment and that if presented with a certain arrangement of contingencies or reinforcement, that student will learn as a function of being taught (Skinner, 1957). In other words, given a student's behavioral history, the current situation, the student's response to the stimuli in his/her environment, certain consequences will determine the frequency and strength of that response in the future. This behavioral approach demonstrates that the relationship between the organism and his/her behavior is a "fact" of the science of psychology as generated by an experimental analysis of behavior (Bijou, 1970).

When these facts are applied to education, the validity and reliability can be observed, measured, and reproduced. When these concepts and principles are applied in the classroom, one can observe the results of the scheduling of various stimulus materials and the scheduling of reinforcement to generate, maintain, and shape the academic and social behaviors of students in the classroom (Kazdin, 1977; Marholin and Steinman, 1977; and Ayllon, Layman, and Kandel, 1975).

Teachers are seen as being instrumental in dispersing classroom consequences to shape students' behaviors in desirable directions. As more teachers are being systematically trained to be
classroom managers through the use of operant principles, their role has changed from an authoritarian figure that students generally avoided, to a person that is a conditioned reinforcer—all with the purpose of generating and maintaining more learning behavior. Consequently, behavioral psychologists see the teacher as a key person in the process of implementing behavior modification programs in order to increase learning in the schools.

When Baer, Wolf, and Risely (1968) looked closely at the various areas of application of applied behavior analysis, other researchers then began training educators to systematically apply behavior modification principles in their education settings. Teachers soon began to recognize the influence they had in changing students' classroom behavior. The outgrowth of these findings has generated other studies to illustrate the discovery (Breyer and Allen, 1975; Cooper, Thompson, and Baer, 1970; and Schutte and Hopkins, 1970).

Research in the high school has been largely limited to modifying teacher behavior as opposed to changing student behavior. In order to more effectively attend to student behaviors, academic programs have been devised to analyse the entire learning process. The designers of some of the programs concentrate on preventive techniques, while others concentrate on remedial measures. It appears that few, if any, programs are aimed at both objectives.

The following project description is a brief overview of a Contract Study Center that is aimed at meeting both objectives. This Contract Study Center was the site of the present research.
The Guided Study Project (GSP) was designed to offer students an opportunity for structured daily study. The GSP is operated by an adult, university monitor who functions as the program manager. Student staff members serve as peer assistants to student participants. Help is available in two major areas: Academic work and study skill development.

Specifically, the GSP center provides a structured setting where students can work on academic assignments on a daily contractual basis. When a student comes to the center, a performance contract is written. The contract includes a clear statement of the type and amount of work that is to be accomplished and the time allowed for the completion of the work. Staff members monitor progress and provide assistance, if requested. When the work is completed, a review is done by student staff based on a predetermined criterion stated in the contract. If the rules and procedures for the center are followed, students may continue to use the center. Students may ask to use the center or they may be referred by a teacher. In all cases, teacher approval is required. At the end of the work period, the teacher authorizing the visit is informed of the results of the student's work.

Teachers are asked to help identify potential student staff members and to specify academic activities that are most in need of attention for any one student. Any subjects may be studied in the
GSP center. However, assistance will be provided if a student staff member with expertise in that area of study is available. Typically, several student staff members with a variety of skills are available to student participants in the center at any one time.

The primary goal of the GSP is to aid students by providing structured study time during study hall or during within-class periods. The GSP center staff can provide supervision and needed individual attention for academic work to a substantial number of students, thus supplementing that done in other settings. Additionally, the GSP staff can help student participants develop study skills through the structured, supervised environment and the use of the contracting procedures.

Various authors have discussed the staffing for contract study centers. It was found that the staff ranges from school administrators and parents to school peers and college students. Like the present study, Robertson, De Reus, and Drabman (1976) used school peers and college students to tutor in a contingency contract program. Robertson et al. (1976) claim to have been successful in reducing disruptive classroom behavior as a function of this program in the elementary school. Schwartz (1977) discussed how college students served as contingency managers for seventh graders that needed to remediate reading skills.

There are a number of similarities between the present study and a study conducted by Cantell, Cantell, Huddleston, and Woolridge entitled, "Contingency Contracting with School Problems." Cantrell
et al. (1970) devised an experimental design to see if changes in first through eleventh grade student academic behaviors could be brought under control by teachers and parents as a function of contingency contracting. The procedure began when the student was referred to the contract center. The position of the referral initiator was not mentioned in the cited study. The contract was a written explanation of changes in contingencies to be used by the program's contingency managers, teachers, and parents. The contract utilized the Premack principle and included the behaviors needed in order to reach the target behavior.

The present study is also similar to a study conducted by MacDonald, Gallmore, and MacDonald (1970) where they used contracting in a high school. Those authors attempted to increase the attendance rate by arranging "deals". The meaning and utility of MacDonald's et al. "deal" is synonymous with what behavioral psychologists might label a contract. As defined by Martin, Burkhoder, Rosenthal, Tharp, and Thorne (1968) and Tharp and Wetzel (1969), a "deal" is a contract between a mediator and a target subject. The method of insuring a subject's participation to complete a behavior was analogous to that used in the present study. However, the cited study led the reader to believe the "deal" was a verbal agreement used to increase school attendance. In the present study, a high school student would complete a written agreement to perform an academic task. MacDonald et al. (1970) contend that the making of the "deal" may have been responsible for the increase in attendance while the "deal" condition was in effect.
In the present study, high school teachers were encouraged to refer their students to the contract study center for additional help in completing academic assignments. Prompts, feedback, and prompts combined with feedback were used in the attempt to increase the rate of teacher referrals.

PROMPTS

Whenever a response occurs at a very low rate or strength, has less than an acceptable form, or fails to occur at appropriate times, there may be the need for a prompt to generate and/or maintain that response. The introduction of an environmental stimulus to "aid" in making that particular response is termed "prompting" by Allyon and Azrin (1964) and Skinner (1957).

A teacher's education is not directed toward imparting skills in the area of administering effective behavioral contingencies. This can be considered a deficit in the new teacher repertoire. According to Bellack and Hersen (1977), behavioral deficits that could benefit by the introduction of a stimulus aid, exist for three reasons. The teacher may have the desired response already in his/her repertoire but the environment lacks sufficient opportunities to provide the teacher with adequate prompts. Therefore, the teacher may need a cue for the appropriate time and place for execution of the behavior.

In order to effectively apply a prompt, it is necessary to determine the rate of occurrence of the desired response. In the
present study, it was noted that at least one of the teachers was not making the desired response. It was decided to modify the classroom environment to provide cues to the teachers who were responding at a relatively high rate and to the teachers who were responding at a relatively low rate. For the teachers that did not exhibit the desired response, an environmental prompt was paired with a form of feedback.

Prompts may be in various forms. Krumboltz and Krumboltz (1972) reported a simple, direct prompt for appropriate behavior. This type of prompt would be analogous to a verbal or informative prompt that could serve an educative function as well as serve to structure the environment so that a teacher would know exactly what response was required. An informative prompt for a teacher in the present study was, "Guided Study is open during your first hour. Your students are more than welcome to visit."

Smith and Smith (1964) suggested that the most effective form of prompting is the use of consistent rules. If a person is made aware of what is expected of them, a consistent pattern of responses to his/her behavior as well as consistent limits are developed, to which that person is more likely to exhibit the appropriate response. A prompt of this kind would be, "All that is needed for students to attend Guided Study is a referral from the teacher."

A prompt that functions as a stimulus to cue a desired behavior when it is seen is called a visual prompt. This form of prompting acts as an environmental cue to evoke a response in a person's
reperoire. Since the response is already in the repertoire at some strength, the purpose would be to stimulate the subject to make the response or to "remind" the subject to exhibit a certain behavior. The prompt could be in the form of a wall poster, an index card, a specific person, a certain place, or a designated time.

Palmer, Lloyd, and Lloyd (1977) were successful in demonstrating that prompting was an effective technique in reducing daily electricity consumption in three out of four suburban families. Prompting in this study, was in the form of index cards taped daily to each of the family's storm doors to facilitate sight of the prompt by the family the following morning. Knapczyk and Livingston (1974) conducted a study that observed a teacher implemented verbal prompting procedure for training special class students to ask questions. The results indicated that the procedure was well suited for classroom use because it did not interfere with on-going classroom activities, required minimum amount of teacher's time, and involved no record keeping. VanHouten and Sullivan (1975) attempted to increase the rate of teacher praise as a function of audio cuing via a school public address system. Positive results were reported across all three subjects/teachers by providing a frequent discriminative stimulus for looking and attending to student behavior. This form of prompting was shown to be more effective than self recording because it provided the teacher with a reminder to praise appropriate behavior.
FEEDBACK

A review of the psychological literature revealed that the process of providing an informational stimulus about an individual's previous performance of a well defined and measurable target behavior is effectively applied alone or in combination with other techniques in a wide variety of situations. This informational stimulus is termed "feedback".

In order for feedback to occur, one person has to describe some component of another person's behavior to that person. This method of description may cause feedback to be considered part of verbal behavior. Skinner (1957) concurs that feedback can be considered a special type of verbal behavior. Feedback must gain its effectiveness through the behavior of another person and the other person's behavior must be emitted as a result of special training for purposes of reinforcing the speaker. Consequently, feedback can be considered a verbal stimulus that functions in a variety of ways. For purposes that are consistent with the present study, feedback functioned as a verbal stimulus and as a conditioned reinforcer in order to change another person's (e.g. teachers) behavior. For example, in the present study, index cards served as a means for feedback when a message was printed that may have said, "You may be glad to know that you referred seven of your students to Guided Study this week, that's great!"

In addition to feedback being considered a verbal stimulus, it functions as visual stimulus in the present study. Visual stimuli,
in the form of notes, papers, or cards, have been instrumental in
the schools to modify teacher's behavior. Parsonson, Baer, and
Baer (1974) provided feedback to two teachers of institutionalized
kindergarten children. The objective of the study was to modify
the percentage of attention responses the teachers delivered to
specific children as a function of visual feedback. The feedback
was in the form of a daily slip of paper delivered to each teacher
at frequent intervals. Cooper et al. (1970) were successful in
modifying preschool teachers' behavior to attend to appropriate
child responses by providing feedback in the visual form of a note.

Informative feedback consists of sending statements to selected
people to compare another persons past to present behavior. The
present study utilized informative feedback in a way similar to that
used by O'Brien and Azrin (1970) in the shaping of desired posture,
Fink and Carnine (1975) in the reduction of the number of arithmetic
errors, and Seaver and Patterson (1976) in reducing energy consumption.
No studies were located that provided informative feedback to modify
teacher's behavior.

Skinner (1957) asserts that the immediacy of providing feedback
in order to promote behavioral change is as important as the temporal
efficacy of presenting reinforcement and punishment to increase or
decrease behavioral responses. Panyon, Boozer, and Morris (1970);
Pomerleau, Bobrove, and Smith (1973); and Breyer and Allen (1975)
represent documented studies that utilized relatively long delay
periods between the desired response and feedback. Successful
results were reported by Panyon et al. (1970) when they attempted to increase the number of training sessions conducted by institutional attendants as a function of weekly feedback in the form of a visual sheet. Pomerleau et al. (1973) were effective when they attempted to provide weekly feedback to psychiatric attendants for the behavioral improvements of their assigned patients. Breyer et al. (1975) describe how they were only slightly effective when they attempted to provide feedback every other day to teachers attending to appropriate student behavior.

PROMPTS AND FEEDBACK

The present study examined the effects of prompts combined with feedback as a single condition to increase the number of teacher referrals of students to a contract study center. It has been documented that visual prompts and informative feedback, independently, may have been responsible for desirable behavior changes. Thus, it has been hypothesized that by combining both procedures into one may lead to more control than either prompts or feedback could produce alone.

Some previous authors have studied similar joint procedure methodologies. VanHouten, Hill, and Parsons (1975) discovered that timing combined with visual feedback (graphs) increased the rate of composition writing in elementary school children. Cossairt, Hall, and Hopkins (1973) demonstrated that the rate of teacher praise on student attending behaviors could be increased by delivering
instructions, feedback, and feedback combined with social praise. During this experiment, it was observed that more teacher praise statements were made during the combination condition as opposed to the instruction or feedback condition. O'Leary, Kent, and Kanowitz (1975) investigated the effects of tokens to decrease the rate of disruptive classroom behavior in the elementary school Feedback and praise were given to the elementary teachers to maintain high communication throughout the successful study even though this joint condition was not included as a systematic condition of the experiment.

Seaver et al. (1976) showed that informational feedback alone was not as effective as was informational feedback coupled with a commendation for reduced fuel oil consumption. On the other hand, Palmer, et al, (1977) produced significant results when attempting to reduce electricity consumption in three out of four suburban family homes. Those authors used experimental conditions such as prompts, feedback, and prompts combined with feedback. The conditions were consistent with the conditions used in the present study. All of the above studies demonstrated that when feedback was combined with another procedure, the combined condition was the most effective. One can only speculate as to the answer to the question posed by VanHouten et al. (1975) concerning how much of each of the multiple factors individually contributed to the overall effectiveness of the experimental condition.

In the present study, the effects of prompts, feedback, and prompts combined with feedback were examined to determine the
effects on increasing the number of teacher referrals of students to a contract study center. This research also explained issues that related to motivating student academic behavior and study skill development through the use of contracts once the teacher made the initial referral.
METHOD

EXPERIMENT 1

Experiment 1 was an attempt to increase the teacher referral rate of students to a contract study center as a function of prompts, feedback, and prompts combined with feedback.

Subjects and Setting

Three female and four male teachers from a rural, public high school made up the seven teachers who participated in the study. Each teacher was recruited because of the academic courses he/she taught. That is, each teacher taught subjects in which the classroom assignments could be done outside of class. Teachers that taught classes such as building trades, typing, or art were not included because of the lack of feasibility of bringing the assignments outside the classroom. Each teacher that participated had been teaching at the high school for at least two years.

Design and Conditions

A multiple baseline design across teachers was used to evaluate the effects of the three intervention techniques. For each teacher, a treatment condition was sequentially introduced in a random order while returning to baseline after each condition.

Baseline

During baseline condition, the student referral rate was noted
daily for each teacher. No responses were made by the experimenter to influence the occurrence of any teacher's behavior.

**Treatment**

The treatment package consisted of prompts, feedback, and prompts combined with feedback that was randomly sequenced for each teacher with interspersed baseline periods after each condition.

1. **Prompt Condition.** For each delivery date, either a colored 11 by 14 inch fluorescent posterboard or a colored 3 by 5 inch index card was placed in visual sight of the teacher for which it was intended (see Appendix I). Prompts were varied in the classroom to facilitate generalization of the stimulus. On the delivery date, one of a series of handwritten prompts was placed on the teacher's desk or posted on a wall before the teacher's first hour class. The cards were retained by the teachers while the posters were removed from the classroom wall after the last period of the school day.

   Once the prompt condition had begun and if it was noted that the referral activity occurred at a rate of \( \leq 2 \) referrals for two consecutive school weeks, the prompt was modified to make a more individualized prompt. Individualized prompting was in the form of mentioning the teacher's name, the class name, or a specific class period on the prompt card or poster. This prompting schedule continued until the activity rate was stable enough to return to baseline and proceed to the next condition.

2. **Feedback Condition.** Before school began on each delivery
date, a feedback message was handwritten on a white, 5 by 8 inch index card and was placed on the intended teacher's desk or in his/her mailbox. (See Appendix II) The purpose of the card was to inform the teacher of his/her students' participation and/or performance while attending Guided Study. Each card reported information about a particular student or group of students' social behavior, number of visits, number of contracts completed, amount of work attempted, or subject area studied. The index card was retained by the teacher.

3. Prompt and Feedback Condition. One of the prompts from the prompt series combined with a feedback message was placed on a teacher's desk or put in his/her mailbox before their first period class on each delivery date. (See Appendix III) The Prompt-feedback combination card was retained by the teacher.

Procedure

The experiment was conducted from April 2, through June 7, 1979, for a total of 43 school days. It was planned for each teacher to move through each of the three experimental conditions on a different randomized schedule as shown in Table 1. The days that a condition would be introduced were determined by assigning a number of one through five to each school day of the week and then randomly choosing three of the numbers as delivery dates. During the prompt condition, odd numbered days and even numbered days respectively,
corresponded to the delivery of either a prompt poster or a prompt index card as shown in Table 2.

Results

Figure 1 represents each teacher's student referral rate from April 2, through June 7, 1979. An average daily student referral rate (ADSRR) was calculated by dividing the total number of students in a condition by the total number of days in that condition to arrive at an index that could be used to compare conditions.

Individual Teacher Rates

Teacher 1: Teacher 1 did not refer any students during the 11 day Baseline Period. An ADSRR of .00 was observed for the Period.

After Baseline, prompting was the other condition introduced. On the 17th day of the intervention, the teacher referred one student. The condition was not reversed. During the 32 day prompt condition, an ADSRR of .03 was calculated.

Teacher 2: There was no referral activity during the 15 days Baseline I period. After Baseline I, Teacher 2 referred one student on the 8th day of the prompting condition. There was at least one student referred each day for the remaining 10 days of the condition. Six students were referred on Day 13 of the prompt condition. An ADSRR of 1.77 was computed for the 18 day prompt condition.

Baseline II followed the prompt condition. Data were collected...
Table 1

Each teacher (subject) began at one of the three conditions and eventually proceed through the following two conditions:

\[ P = \text{Prompt condition} \]
\[ F = \text{Feedback condition} \]
\[ P + F = \text{Prompt and feedback condition} \]

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<tr>
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<td>7</td>
<td>F → P + F → P</td>
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<td>7</td>
<td>2,3,6</td>
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Prompt and Feedback Delivery Schedule for Experiment 1

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Experiment I

Figure 1 shows the number of students referred by Subjects 1, 2, 3, and 4 from April 2 thru June 4. The circled data points indicate when a prompt or feedback message was delivered.
Experiment I

Figure 1 shows the number of students referred by Subjects 5, 6, and 7, from April 2 thru June 4. The circled data points indicate when a prompt or feedback message was delivered.
for 10 days. During that time, Teacher 2 referred the highest number of students, which was six, on the 5th day. The least number of students, zero, was referred on the 8th day. Baseline II had an ADSRR of 2.50.

Teacher 3: During the 19 day Baseline I condition, only one student was referred on Day 15. This data suggested an ADSRR of .06.

When the prompt-feedback condition was instituted, Teacher 3 referred one student, this occurred on Day 4. No activity was recorded again until Days 13, 16, and 19, when one student was referred on each day, respectively. Two students were referred on the last day of the 20 day condition. An ADSRR of .30 was obtained for the prompt-feedback condition.

Baseline II continued for four days. Two students were referred on the first day with no other activity recorded for the remainder of the condition. An ADSRR of .50 was obtained.

Teacher 4: During Baseline I, no activity was observed until the 23rd day of the 26 day period. On Day 23, two students were referred. An ADSRR of .08 was calculated for the Baseline condition.

Following Baseline I, no activity was recorded until the 3rd day of the prompt condition. One student was referred on the 3rd and 4th day, zero on the 5th day, two on the 6th, and zero for the remainder of the 12 day condition. An ADSRR of .33 was calculated for this Baseline condition.
Baseline II began with two students being referred on Day 1, one student on Day 2, two students on Day 3, zero students on Day 4 and one student on the final day of the 5 day baseline period.

Baseline II had an ADSRR of 1.20

Teacher 5: Teacher 5 began referring students on Day 2 of the 27 day Baseline I period. No students were referred on Days 8, 10, 14, 26, and 27. Nine students were referred on Days 19 and ten students on Day 24. Baseline I had an ADSRR of 3.04.

When the seven day feedback condition was instituted, Teacher 5 responded by referring four students on the first day. The number of referrals fell to one on Day 2, rose to eight referrals on Day 5, and fell to two on Day 6. An ADSRR of 4.00 was calculated for the feedback condition.

Eight student referrals were observed on Day 1 of Baseline II. The number of referrals increased to 13 on the 3rd day, fell to zero on the 4th day, and rose again to eight referrals on Day 7. There were referrals on the last two days of the ten day condition. An ADSRR of 5.33 was calculated for Baseline II.

Teacher 6: During Baseline I, Teacher 6 referred three students on Days 3, 6, and 15. After Day 15, the referral activity rate fell to zero and remained there for the next 11 days. On Day 27, the referral rate rose to one student and increased to two students on Day 28. The number of referrals remained at two each day for the duration of the 30 day period. An ADSRR of .63 was calculated for Baseline I.
Following Baseline I, feedback was the intervention strategy next instituted. During the intervention, the student referral rate never fell below one student per day. The student referral rate rose to a high of four referrals on Days 4, 5, and 8. An ADSRR of 2.60 was calculated for the Feedback condition.

When Baseline II was instituted, Teacher 6 referred three students on the first day, two students on the second day, and one student on the final day. An ADSRR of 2.00 was calculated for the Baseline II period.

Teacher 7: The baseline condition continued for 35 days. During that time, two students were referred on the sixth day. No other activity occurred. An ADSRR of .05 was calculated for Baseline.

The Prompt condition followed Baseline. Prompting continued for five days. No students were referred on the first, second, and third day. On the fourth day, two students were referred and three students were referred on the fifth day. An ADSRR of .55 was calculated for the Prompt condition.

EXPERIMENT 2

The purpose of Experiment 2 was the same as Experiment 1. Experiment 2 attempted to show that prompts, feedback, and prompts combined with feedback may have an effect on increasing teacher referral rate of students to a contract study center. Due to lack of time left in the Winter semester for Experiment 1, some teachers
<table>
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Table 3
Prompt and Feedback Delivery Schedule for Experiment 2
were not able to proceed through all of the experimental conditions and return to Baseline after each condition. Consequently, there was an insufficient amount of data collected to demonstrate the effects of the variables of interest.

There were no modifications in the design of Experiment 2 when the study was continued the following Fall semester. The teacher population that participated in Experiment 1 changed due to the retirement of one teacher. This situation created one opening position that was filled by the incoming teacher that taught history and English.

**Subjects and Setting**

Two women and five men were the seven subjects for Experiment 2. One male teacher began in the Fall term because one female teacher retired. All other subjects remained the same.

**Design and Conditions**

The experimental design and conditions remained the same as in Experiment 1.

**Procedure**

The experiment was conducted from October 2, through December 17, 1979, for a total of 52 school days. As in Experiment 1, Experiment 2 was designed for each teacher to proceed through each of the three experimental conditions and return to baseline after each on an
individualized, random schedule as shown in Table 2. The procedure for Experiment 2 was the same as in Experiment 1.

**Results**

Figure 2 represents each teacher's referral rate from October 2, through December 17, 1979.

**Individual Teacher Rates**

**Teacher 1:** Teacher 1 did not refer any students during the 23 day Baseline period. An ADSRR of .00 was observed for that period. After Baseline, prompting was the first condition introduced. On the fifth day of the intervention, the teacher responded by referring two students. No activity was noted for the following 15 days. Two students were referred on the 16th day. No other activity was observed for the remainder of the 30 day condition. During the prompt condition, an ADSRR of 1.30 was achieved.

**Teacher 2:** No students were referred on the first three days of Baseline I. One student was referred on Day 4 and Day 7. The number of referrals rose to four on Day 10, fell to one on Day 11, and fell to zero on Day 12. Three students were referred on Day 18, fell to zero for the following five days, and increased to four students on the 26th day of the 27 day period. An ADSRR of .70 was calculated for Baseline I.

Five students were referred on the first day of the Feedback
condition. The number of referrals fell to two, increase to three and then four, remained at two for Days 5 and 6, fell to one, rose to two, and fell to zero on Days 9 and 10. One student was referred on the final day of the 11 day Feedback condition. An ADSRR of 1.90 was calculated for the Feedback condition.

Baseline II began with two students being referred on Day 1 and Day 4. The number of referrals increased to four on Days 6 and 7, fell to three on Day 10, and fell to one on the following two days. Days 13 and 14 revealed a referral rate of three each day and zero on the final day of the 15 day Baseline II period. An ADSRR of 1.60 was obtained for Baseline II.

Teacher 3: There was no referral activity during the 19 day Baseline period. An ADSRR of .00 was observed.

A Prompt-feedback condition was instituted following Baseline. There was no activity observed for 25 days. On Day 26, one student was referred and on Day 27, five students were referred. There was no further activity noted for the remaining six days of the 34 day condition. An ADSRR of .17 was obtained for the Prompt-feedback condition.

Teacher 4: No students were referred during the nine day Baseline period. An ADSRR of .00 was obtained.

The Prompt condition followed Baseline I. No activity was observed for the first five days. On Day 6, two students were referred, the activity rate fell to zero for the next three consecutive days, and rose to two referrals on the last day of the 10 day condition.
Figure 2 shows the number of students referred by Subject 1, 2, and 3 from October 2 thru December 17. The circled data points indicate when a prompt or feedback message was delivered.
Figure 2 shows the number of students referred by Subjects 4, 5, and 6 from October 2 thru December 17. The circled data points indicate when a prompt or feedback message was delivered.
Figure 2 shows the number of students referred by Subject #7 from October 2 thru December 17. The circled data points indicate when a prompt or feedback message was delivered.
During the Prompt condition, an ADSRR of .40 was calculated.

One student was referred on Days 1 and 2 of Baseline II. The referral rate fell to zero on Days 3, 4, and 5, rose to six referrals on Day 6, but fell to zero on Day 7. On Day 8, two students were referred while one student was referred on Day 10. The rate remained at zero for the next three days and rose to two referrals on the 14th day of the 15 day Baseline II period. An ADSRR of .86 was computed.

A Prompt-feedback condition followed Baseline II. There was not any activity until the fourth day of the condition. On the fifth day, four students were referred, however the number of referrals fell to one on Day 6, and zero on Day 7. During the next five days, the referral rate did not fall below two on any of the days, but reached four referrals on three out of the five days. On Day 14, the number of referrals increased to nine, fell to zero on Day 15, increased to 14 on Day 16, but fell again to zero for the remaining three days of the 19 day condition. This data suggested and ADSRR of 1.84 for the Prompt-feedback condition.

**Teacher 5:** During the 27 day Baseline period, one student was referred on the third day. This data created an ADSRR of .03 for the Baseline period.

A feedback condition followed Baseline. One student was referred on Day 16 of the 26 day condition which suggested an ADSRR of .03 for the Feedback condition.

**Teacher 6:** Teacher 6 referred one student on Day 3 of the 19 day Baseline period. During the Baseline period, an ADSRR of .06

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was achieved.

A Prompt-feedback condition followed Baseline. There was no activity for the first five days of the condition. One student was referred on Day 6 and 7. The rate remained at zero for the following 10 days, increased to one on Day 11, fell to zero for the next four days and rose to one referral on Day 24. Day 25 and 26 showed no referral activity. Days 27 and 28 showed two and one referral, respectively. No further activity was observed for the remainder of the 34 day condition. An ADSRR of .21 was counted.

Teacher 7: No activity was observed during the 9 day Baseline I period. An ADSRR of .00 was seen.

A Prompt condition followed Baseline I. No activity was observed during the first six days. On the seventh day, four students were referred. The rate fell to zero on Day 8, rose to five referrals on Day 9, and fell to one referrals on the final day of the 10 day condition. An ADSRR of 1.00 was figured.

Eleven students were referred on the first day of the Baseline II period. The number of referrals fell to two on Day 2 and to zero for Days 6, 7, and 8. During the following 12 days, the referral rate never fell below one referral per day but rose to a maximum of 10 referrals on Day 12 and 13. On Day 21, the referral rate fell to zero for two consecutive days and rose to one on the final day of the 23 day condition. An ADSRR of 2.64 was shown.

A Feedback condition was instituted following Baseline II. One student was referred on Day 1. The referral rate fell to zero on
Days 2 and 3, rose to one referral on Day 4 and 5, and fell to zero on Day 6. On the seventh day, the rate increased to seven referrals, fell to four referrals on Day 8, increased to seven referrals on Day 9 and fell to zero for the remainder of the Feedback condition. An ADSRR of 1.90 was achieved for the 11 day Feedback condition.
DISCUSSION

This study demonstrated that prompting combined with feedback showed minimum effects in generating behavior for all teachers. When the effect from the prompting combined with the Feedback condition manifested, it was seen two to seven days after the condition was instituted. This result could be interpreted as a delayed effect. Feedback was "slightly" effective strategy in generating behavior and reducing the amount of variability in behaviors.

As shown in Experiment I, graphs 1 and 7 and Experiment II, graphs 1, 3, 5, and 6, it was not possible to demonstrate experimental control because of the relatively long Baseline Periods that were necessary to achieve stability. Consequently, there were six instances where an AB design was unintentionally produced. The design occurred in one instance when the teacher was introduced late in the academic semester and thus late in the experiment. Therefore, there was not enough time for the referral rate to achieve stability in order to change conditions. The remaining teachers frequently explained to the experimenter that they supported the Guided Study Project concept, however their class structure was not constructed to facilitate studying or completing classwork outside the classroom.

Baily (1977) says that an AB design can be convincing given several conditions. The one condition that is important to the present study required that the baseline period must be fairly long. For the teachers involved, their baselines were long. However, their data were not stable nor was the effect rapid enough to definitely
conclude that the intervention may have been responsible for the change.

In addition to the reversal design, the multiple baseline design was used to demonstrate control of the contingencies. For the present study, the cumulative treatment dimension of the multiple baseline design was the more practical design to use. Because the short term objective of the study was to show a functional relationship between the intervention strategy and the behavior and the general goal was to increase the referral rate, it may have been considered undesirable by some to solely rely on a statistical analysis of a reversal design.

In Experiment I, subjects 2 and 6 showed that when the second baseline was introduced, the referral rate declined as expected. In Experiment I, subjects 3, 4, and 5, and in Experiment II, subjects 1, 4, and 7 did not decline as expected. Several explanations for not observing a decline are possible. The experimental design may not have supported a functional relationship between the contingency and the behavior. The extraneous variables that are common to public schools, such as vacations, assemblies, field trips, and substitute teachers may have occurred more than anticipated to weaken the contingency in the behavioral relationship.

Another explanation for the referral rate not decreasing during the second baseline may have been due to sequence effects. The first condition produced an effect on responding that interacted with the same variables that had been arranged in the second condition. Unfortunately, additional experimental conditions were not
implemented due to the lack of time.

It had been shown prior to implementing the present study that the reversal design was not a sound choice for comparing an assortment of treatments. To correct for sequence effects, it was originally intended that different subjects were to receive the treatments in a different order and to arrange the treatment in a different order. Again, the time factor prevented the completion of this plan.

Another reason why teachers' behavior may not have declined as expected may be due to the contingency may have been responsible for generating the behavior while other environmental contingencies took over to maintain the effects. For example, when a teacher began referring students when a prompt or feedback was administered, the reinforcers obtained by the teacher and student may have in turn, brought the behavior under the control of the environmental contingencies. Teachers may have observed better test scores, completion of classwork, or more knowledge of the subject matter. Students may have observed similar results. Earlier research conducted at the Guided Study Center supports this inference.

It was also observed that teacher behavior was not the only variable that may have been responsible for the lack of and/or low rate of student referrals to the Study Center. A number of extraneous variables appear likely: 1. The closer a school vacation came, the less productive students became despite demands made by teachers. 2. Several students that were frequent visitors of Guided Study Center
went on a 10 day band field trip that was held out of state. 3. If there was a substitute teacher, he/she was reluctant to refer students or was unaware of the fact that Guided Study existed. 4. Assemblies, pep rallies, and special events required student attendance. 5. Some classrooms, by virtue of the type of classwork, demanded that the students remain in class to receive detailed instruction, such as geometry, speech, or biology. 6. The class structure was such that the student should remain in class because the teacher lectured.

It can be seen in Experiment 2 that Teacher 4's behavior was seemingly under the control of the contingency "prompt combined with feedback". It was speculated that sequence effects may have been responsible for maintaining the referral rate for this particular teacher's behavior. That behavior increase following the prompt condition. During the prompt and feedback intervention, the behavior displayed too much variability to institute another condition. When the prompt combined with feedback condition was introduced following a prompt condition and then a baseline, the first experimental condition (prompts) encouraged referrals.

Possible criticisms and future considerations of the present study surround the ability to minimize and maintain the extraneous variables that occur in the public schools. There were many variable that influenced contingent relationship with the behavior. For instance, it was futile to plan a prompt condition to encourage a teacher to refer when the teacher was absent. It may be necessary
to vary the attractiveness of the prompts. Because the visual prompts were handwritten without any pictures, this could be considered as being responsible for not being a strong stimulus. Some teachers may have been reluctant to refer students because they feared being viewed by their peers and administration as incompetent if their class instruction had to be supplemented by an external study program. Some teachers were concerned that students would get distracted in the hallways.

It was noted by B. F. Skinner (1957) that immediate feedback produced more behavior change than delayed feedback. Consequently, a strategy to insure that the teacher read or be informed of any feedback that is more closely related to the desired behavior should be investigated. This experimental design produced positive results in the community and clinic, however very little manipulations of these contingencies have demonstrated positive effects in the public schools and especially in the high school.

While the present study appears to lend valuable support to auxiliary services in the public schools, the amount of time invested may not be of sufficient, practical importance in terms of the product yield in behavior change.
APPENDICES
APPENDIX I

Index Card Prompt

Date

If any of your students need individual assistance, Guided Study can help.

Poster Prompt

Come see what is happening at Guided Study.
APPENDIX II

Index Card with Feedback Message

(Date)

(teacher's name)

You may be pleased to know that six students from your math class visited Guided Study yesterday. All of them completed their homework assignment.
APPENDIX III

Prompt and Feedback Message

[Handwritten text]

"Dear [Student Name],

Thanks for your work over the weekend. I hope you see an improvement in your work. Keep it up!"
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