A Comparison of Three Monitoring Systems on the Management of Contingency Contracting Behavior

James V. Yanna

Western Michigan University

Follow this and additional works at: http://scholarworks.wmich.edu/masters_theses

Part of the Educational Psychology Commons

Recommended Citation
http://scholarworks.wmich.edu/masters_theses/1643

This Masters Thesis-Open Access is brought to you for free and open access by the Graduate College at ScholarWorks at WMU. It has been accepted for inclusion in Master's Theses by an authorized administrator of ScholarWorks at WMU. For more information, please contact maira.bundza@wmich.edu.
A COMPARISON OF THREE MONITORING SYSTEMS ON THE MANAGEMENT OF CONTINGENCY CONTRACTING BEHAVIOR

by

James V. Yanna

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 1983
A COMPARISON OF THREE MONITORING SYSTEMS ON THE MANAGEMENT OF CONTINGENCY CONTRACTING BEHAVIOR

James V. Yanna, Ed. S.
Western Michigan University, 1983

Three student monitoring systems were compared to determine their efficacy in maintaining student contracting behavior. These systems were (1) teacher monitoring, (2) student peer monitoring, and (3) self monitoring. The study examined the extent to which each of the three systems would maintain students correctly including all of the necessary contract components. The results showed a small and statistically insignificant variation between the three procedures. Each procedure resulted in an approximately 70% contract component specification. Additional research was recommended to determine if student contracting behavior would maintain in the presence of a longer self-monitoring condition. It was also recommended that the student training program be experimentally validated.
ACKNOWLEDGEMENTS

I owe a great deal of appreciation to many people for making this project possible. First and foremost I would like to thank Howard Farris for all of the phone calls, the meetings, the feedback, and the "boot" that I needed to complete this project. He is one of the few people I know who can honestly call themselves a "teacher".

I would also like to thank Ray Boetger who collected my data as though it were his own.

To Dave Lennox who provided me with advice and his computer as well as a lot of company while we were on the "front lines" in the Guided Study Class.

To Wayne Fuqua and Norman Peterson who served on my committee and provided me with much valuable feedback.

And last but not least to Lynn, Brandon, and Meggan Yanna who provided their part-time husband and father with the support and tolerance that he needed to complete the project.

James V. Yanna
INFORMATION TO USERS

This reproduction was made from a copy of a document sent to us for microfilming. While the most advanced technology has been used to photograph and reproduce this document, the quality of the reproduction is heavily dependent upon the quality of the material submitted.

The following explanation of techniques is provided to help clarify markings or notations which may appear on this reproduction.

1. The sign or “target” for pages apparently lacking from the document photographed is “Missing Page(s)”. If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting through an image and duplicating adjacent pages to assure complete continuity.

2. When an image on the film is obliterated with a round black mark, it is an indication of either blurred copy because of movement during exposure, duplicate copy, or copyrighted materials that should not have been filmed. For blurred pages, a good image of the page can be found in the adjacent frame. If copyrighted materials were deleted, a target note will appear listing the pages in the adjacent frame.

3. When a map, drawing or chart, etc., is part of the material being photographed, a definite method of “sectioning” the material has been followed. It is customary to begin filming at the upper left hand corner of a large sheet and to continue from left to right in equal sections with small overlaps. If necessary, sectioning is continued again—beginning below the first row and continuing on until complete.

4. For illustrations that cannot be satisfactorily reproduced by xerographic means, photographic prints can be purchased at additional cost and inserted into your xerographic copy. These prints are available upon request from the Dissertations Customer Services Department.

5. Some pages in any document may have indistinct print. In all cases the best available copy has been filmed.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
YANNA, JAMES VICTOR

A COMPARISON OF THREE MONITORING SYSTEMS ON THE MANAGEMENT OF CONTINGENCY CONTRACTING BEHAVIOR

WESTERN MICHIGAN UNIVERSITY

University Microfilms International

300 N. Zeeb Road, Ann Arbor, MI 48106

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
PLEASE NOTE:

In all cases this material has been filmed in the best possible way from the available copy. Problems encountered with this document have been identified here with a check mark √.

1. Glossy photographs or pages ______
2. Colored illustrations, paper or print ______
3. Photographs with dark background ✓
4. Illustrations are poor copy ______
5. Pages with black marks, not original copy ______
6. Print shows through as there is text on both sides of page ______
7. Indistinct, broken or small print on several pages ✓
8. Print exceeds margin requirements ______
9. Tightly bound copy with print lost in spine ______
10. Computer printout pages with indistinct print ______
11. Page(s) ________ lacking when material received, and not available from school or author.
12. Page(s) ________ seem to be missing in numbering only as text follows.
13. Two pages numbered _________. Text follows.
14. Curling and wrinkled pages ______
15. Other ____________________________________________

University Microfilms International

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>ii</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>iv</td>
</tr>
<tr>
<td>CHAPTER</td>
<td></td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>11. METHOD</td>
<td>14</td>
</tr>
<tr>
<td>Subjects</td>
<td>14</td>
</tr>
<tr>
<td>Setting</td>
<td>15</td>
</tr>
<tr>
<td>Materials</td>
<td>15</td>
</tr>
<tr>
<td>Procedure</td>
<td>18</td>
</tr>
<tr>
<td>III. RESULTS</td>
<td>24</td>
</tr>
<tr>
<td>IV. DISCUSSION</td>
<td>31</td>
</tr>
<tr>
<td>APPENDICIES</td>
<td>41</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>45</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Number of contract components included each day for subject</td>
<td>25</td>
</tr>
<tr>
<td>2.</td>
<td>Number of contract components included each day for subject</td>
<td>26</td>
</tr>
<tr>
<td>3.</td>
<td>Percent of contracts containing each of the ten contract components</td>
<td>30</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

Many high schools offer study halls to provide students with a place to complete their daily assignments. However such an atmosphere is not entirely conducive to academic activities. Few study halls contain the necessary structure for productive academic task completion. Usually, the only students who make optimum use of such a class are those students with a history of self-control (Stinson, 1981). Other students may be off-task, or at times quite disruptive.

The Guided Study Center at Schoolcraft High School is an effective alternative to the traditional study hall. The GSC attempts to provide an atmosphere where students can: (a) comfortably and productively work on class assignment, (b) receive help on that work, and (c) learn effective study skills.

The Guided Study Class was developed from a center based concept. In 1971, the Center began as an alternative study area which was used by students on a voluntary basis. Students could come to the Center either from their traditional study hall, or could be sent from another class. The Center was staffed by one or more graduate practicum students from Western
Michigan University who served as center managers, as well as high performing high school students who served as peer tutors. Two studies showed the Guided Study Center to be frequently used by many students, as well as capable of promoting increased academic achievement (Stinson, 1981; Redmon, 1981).

In the fall of 1982 the center was expanded to become a class. At that time all study halls were replaced by the guided study concept. The class was then staffed by a Western Michigan University graduate student who served as the class teacher. The teacher was at times assisted by other Western Michigan University graduate students using the center to do practicum work. Student-staff members were again assigned to some of the classes.

Unlike other classes, the Guided Study Class had to contend with three problems. The first of these was an enormous need for individualization. Students using the guided study class worked on a variety of divergent school activities. For example, students contracted to work on Shakespeare, art drawings, pleasure reading, trigonometry, and shop projects to mention but a few.

Secondly, the Guided Study Class served every grade level in the high school, both regular and special education. Thus students showed wide variations in skill
levels. A number of students working on the same assignment may have shown wide variations in both the quality and quantity of work completed.

A third problem is that the study hall work behavior may be quite removed temporally from any actual consequences of that work. In a traditional study hall little or no immediate consequences arise contingent upon work completion. Similarly, long-term assignments such as term papers and projects are so delayed that little class time is spent on them until the assignment's due date becomes imminent.

Systems have been developed to deal with many of these problems. Keller's (1968) Personalized System of Instruction is a system that utilizes peer tutors to supervise a course that allows students to work at their own pace.

Skinner (1968) advocated the use of teaching machines as a way of individualizing instruction. The machines were simple mechanical devices that sequentially presented small units of instructional material. After reading the material the student was usually required to compose some response to it. Once the student's response was complete s/he could mechanically manipulate the device to determine if the answer was correct. Skinner's notion of the efficacy of
teaching machines has begun to be realized quite recently on a large scale with the increasingly widespread use of computer assisted instruction. Innovations in both hard and software are being developed at an astonishing rate, and are finding themselves into schools across the entire country.

However, despite their demonstrated usefulness, these approaches are not totally applicable to the guided study class in that they are primarily set up to individually teach specifically programmed subject matter. Such programming is extremely difficult and quite time consuming (Markle, 1964). It would be extremely difficult to use such systems in the Guided Study Class where a variety of divergent tasks must be quickly and individually monitored and evaluated.

A promising solution to these problems may be the contingency contract. A contingency contract is a method for clearly describing student behaviors and their resulting consequences. It specifies the responsibilities of both the teacher and the student (Williams, Long, and Yoakley, 1972), and essentially states "what I'll do for you if you tell me what you will do for me" (Birdwell, 1972).

A contract individualizes instruction in that each student can work on any academic task that he or she
wishes. Also, students with different skill levels can contract to complete different amounts of the same work, or can contract to complete it with different levels of quality.

Contingency contracting avoids the problem of delayed consequences in that some consequence can be immediately applied, following task completion, to everyone regardless of the work that they have contracted to do.

Contracting can further be used to break longer, more complex tasks down into smaller and more manageable components. According to Fox (1966) working on long assignments essentially puts the student on a very large ratio schedule. Breaking the task up into smaller units results in a much higher density of reinforcement, and thus a much smaller reinforcement ratio. This may avoid the negative effects of a strained ratio.

As stated above, the Guided Study Class not only strived to provide an atmosphere where students could productively study, but also one where they could learn effective study skills. In a traditional study hall students receive little or no feedback as to the quality of their work. Assignments are not checked for completion or quality, and inefficient study behaviors are allowed to continue uncorrected.
A student's failure to learn effective study skills may be in a large part attributable to the fact that the skills are not systematically taught. According to Bloom (1976) many learning problems stem from the lack of student opportunity to respond to instruction in an overt way. Study behaviors are essentially covert. Thus, the study hall teacher cannot ascertain if study behavior is occurring, or correct it if it is faulty. Additionally, one cannot expect to strengthen appropriate study behavior without reinforcing it. If study behavior is allowed to remain covert, instances of appropriate behavior cannot be reinforced. Contingency contracting can possibly solve much of the problem by requiring an overt product of study behavior it can be frequently assessed. Appropriate behaviors can be reinforced, and inappropriate behaviors corrected.

There are other positive features of contingency contracting. First of all it can make a class more structured and consistent (Arwood, Williams, and Long, 1974). It allows a student to clearly understand what is expected of him or her, and what will happen as a result of his or her behavior.

Secondly, contracting promotes individual success. Because the task is made clearer and tailored to the student's skill levels the student has a higher
probability of successfully completing the task.

Thirdly, it gives the student a role in determining the class details (Warner and Akamine, 1972). Thus the student becomes an integral part of the educational planning process (Amsden, 1970). A study by Lovitt and Curtis (1969) supported this contention by showing that a 12 year old behavior problem child's rate of academic work completion increased when he was allowed to state his own work per point contingencies in a token economy than when the contingencies were teacher controlled.

Fourthly, contingency contracting provides an effective means of record keeping (Redmon, 1981). Completed contracts enable teachers, parents, and the student him or herself to see exactly how s/he spent his or her study time. This may provide data valuable in helping students with academic problems. It can also provide an objective basis for assigning class grades.

And fifthly, it gives the student a rare opportunity to practice organizing his or her time. It also gives the student the opportunity to take the initiative and responsibility for his or her learning (Amsden, 1970).

Contingency contracting has been shown to be quite effective in improving both social and academic performance across a number of different settings and
age groups. For example, Brigham and Amith (1973) implemented a system with second-grade elementary students in which the students and the teacher negotiated for the amount of work that would be required before the student would be allowed access to a highly desirable activity. They found that the system increased both the amount of work completed and the accuracy with which it was completed.

Berta (1974) described a written contracting system used with junior high school Science students. Although the system was reported to have various problems, it was described as being very successful in promoting student achievement.

Two studies examined the effects of contracting with high school populations. Both Williams et al. (1972) and Arwood et al. (1974) showed that on-task behavior and appropriate classroom social behavior could be increased through the use of a contingency contract.

Contingency contracting has been found to be quite effective in other settings outside of the regular education classroom. For example, Dee (1972) used a contingency contracting system to produce improvements in academic behavior in children characterized as having emotional problems. Clements and McKee (1968) used a contracting system to increase academic behavior in
prison inmates. DeRisi (1975) reports that contracting can be a powerful tool in clinical psychology settings.

In most of the above studies contracting was used in the context of completing longer duration tasks. However, in the Guided Study Class the teacher may have to negotiate as many as 35 individual contracts per hour. With such a work load, little class time is left for assisting students or monitoring their conduct. One possible solution to the problem is to train student-staff members to assume some of these duties. Ehly and Eliason (1980) surveyed the literature on peer tutoring. Many studies showed peer tutoring to be quite successful at the elementary, secondary, and college levels. Bloom (1976) also surveyed the peer tutoring literature. She reported that 90 percent of the studies showed significant academic progress for the tutees. Also, 66 percent of the studies showed academic progress for the tutor as well. Many of these studies also showed improvements in attitude towards school as well as increased "self-concepts" for both the tutors and the tutees.

However, few studies dealt with same age tutors, or with the use of peers as behavior managers. It may be quite difficult to use same-age peers in this capacity. During the first semester of the Guided Study Class it
was observed that the student-staff had a great deal of difficulty monitoring their peers. Perhaps this is one of the reasons for the lack of peer tutoring programs using same-age peers. A possible solution to the problem may be to have the student-staff members only provide feedback to the students on the quality of their contracts, thus avoiding having to consequate their peer with stronger contingencies. Studies have shown that feedback can be used to modify behavior. For example, VanHouten, Hill, and Parsons (1975) showed that writing rate feedback alone could significantly increase the rate of student writing. Similarly Drabman and Lahey (1974) were able to decrease a student's disruptive behavior through the use of feedback.

A second possible solution is self-management of contracting behavior. According to Homme, Csanyi, and Rechs (1969) as an individual progresses through a contracting system s/he should be shaped toward a point where s/he can write and evaluate his or her own contracts (self-contracting). This is a desirable goal because the student will as some time have to function independently of the structured Guided Study Class. Self-contracting could be a step towards such a situation. And the skills may generalize to other academic situations.
To write and evaluate one's own contract, a student must be able to accurately observe one's own behavior. Numerous studies have shown that students can accurately observe and record both desirable and undesirable classroom behaviors. Further, recording alone can lead to significant improvements in those behaviors. For example, Gottman and McFall (1972) increased oral class participation in potential high school dropouts by having them monitor the frequency of their class participation. Bolstad and Johnson (1972) decreased disruptive classroom behavior in first, second, and third grade students by having them monitor their own behavior, and reinforce themselves for lower disruptive behavior rates. Glynn, Thomas, and Shee (1973) maintained a high level of on-task behavior in a second grade class by changing the structure form a teacher administered reinforcement system to one in which the students assessed, recorded, and reinforced their own on-task behavior. Finally, Broden, Hall, and Mitts (1971) were able to increase study behavior in one junior high school student, and decrease talking-out behavior in another by having them self-record these behaviors. One subject received counselor praise for increased study behavior. However, another received no praise for his talking-out reductions.
It has also been shown that students can effectively set their own reinforcement contingencies. For example, Glynn (1970) studied the effects of self-determined versus teacher determined versus chance determined contingencies in a token economy. He found that self-determined contingencies were at least as effective as teacher determined ones in improving academic test performance. In addition, both of these procedures were superior to chance determined contingencies.

Redmon (1981) showed that student contracting behavior could be maintained without teacher support. In his study he discontinued staff monitoring with students who had contracted for some time. Although subjects omitted more contract components, they continued to write contracts. His data also showed that their academic performance remained as high as it was when contracting was monitored.

However, according to Homme et al. (1969) the self-monitoring step may be premature for the Guided Study Class purpose. Homme states that a self-contracting situation is one of the end points in a shaping procedure in which control of contracting is gradually transferred from the teacher to the student. The Redmon study used subjects attending the Guided Study Center on
a voluntary basis. This may have produced a subject population more likely to continue contracting without external support. It is quite possible that without the external contingencies provided by staff members, a Guided Study Class student's contracting behaviors might extinguish.

The purpose of this study is to determine the extent to which teacher monitoring versus peer monitoring versus self-monitoring will maintain a student's contracting behavior. Specifically the study will assess the degree to which each condition will maintain a subject including all of the necessary components of a contingency contract in the Guided Study Class.
CHAPTER II

METHOD

Subjects

The subjects were 12 freshman and sophomore students from Schoolcraft High School in Schoolcraft, Michigan. They ranged in age from 14 to 16 years of age, and were all enrolled in a fifth hour guided-study class of 35 students. They were all regular education students, but differed in academic achievement levels from high to low. The class was not required. However, many were in the class because they had no other class options that hour. Others chose the class to avoid having to take another academic course.

The subjects were chosen from the same period to help insure that they were exposed to approximately the same ambient classroom rules and procedures. Freshmen and sophomores were chosen in order to further equate the subjects as well as to insure that they were not older than the student-staff members.

Even though only freshman and sophomore students were used as subjects, the entire class was subject to the same procedures and rules. Also, there were both subjects and nonsubjects in each experimental condition.
as described below. Only the experimenters were aware of
who was in the study. Further, data were collected on
other students besides the subjects. Except for the
initial training, the subjects were treated no
differently than all other students participating in a
guided-study.

Setting

The class was held in the school cafeteria. This
was an approximately 24 by 48 foot room. The room was
located at the intersection of two halls, and had rows
of large windows along the walls facing those halls. The
room contained four rows of tables. Each row had six
tables, each of which could set four students. The only
other equipment in the room was a two-drawer file
cabinet that was used to store the class materials.
Present were only the students and the teacher.

Materials

Each day the subjects contracted to do various
academic tasks at the center. Almost all of the
contracted work was homework assigned by the subjects'
classroom teachers. Appendix A shows the contract form
that the students filled out daily. The students used
one form for a week by simply adding each day's work to
the list of the previous days' tasks.

Each day the students could contract to do one or more tasks. A task was defined as "one thing that the student wanted to do that day". For each task the subject was asked to include: (a) the date, (b) the amount of time needed to complete the task, (c) a description of the task, and (d) their initials.

For the task description each subject was to include (a) the class that the task was for, (b) the operation to be done with the material, (c) the materials used to complete the task, and (d) an overt product resulting from the work. Finally, each subject was to insure that the total time needed to complete all of the work was between 35 and 55 minutes.

The contract also contained a few other components. For example, each task area contained a space to indicate whether or not the contracted work was completed. At the end of each day either the student or his or her monitor (teacher or student-staff member), depending on experimental condition, would circle either the "complete" or "incomplete" choice to indicate if the activity had indeed been completed. Secondly, under the student initial space there was another space for monitor initials. This space was used only if a teacher or student-staff member reviewed the subject's contract.
to determine if all components had been included for the day. Initials in this box indicated that all necessary contract components were present and that the content of the contract was acceptable to the monitor. Finally, on the back of the contract was a box containing a checklist of student behaviors deemed important for proper classroom conduct. Each student, regardless of experimental condition, was observed daily for these behaviors. Each day the presence or absence of the behaviors was marked in the box.

Prior to beginning the study all subjects worked through a computer program developed by the experimenter to teach them how to write a complete contract. It also taught them the behaviors that were expected of them in their first experimental condition. For example, those subjects in conditions A and B were required to have a monitor check their contracts to insure that all components were present before they could begin work. Subjects in condition C were required to determine if their own contracted tasks were complete prior to beginning work.

As a prompt, each subject received a copy of a handout that explained how to fill out a contract (see Appendix B). The subjects were instructed to keep the
handout in their folder to use when necessary.

Procedure

As mentioned above, all subjects were required to complete a computer training program before beginning the study. Following program completion the experimenter met with the subjects and further reviewed the contracting procedure with them. At that time each subject was given a copy of the contracting handout as seen in Appendix B.

Only the subjects were required to go through the computer training. Finally, on another day, both the subjects and the rest of the class were trained as a group on the same material using the contracting handout mentioned above.

The study consisted of three different treatment conditions. In condition B the subjects were monitored by the teacher. At the beginning of the hour the subjects in this condition would write their contracts. After they had finished the teacher would check to see if all components were present. If there were any omissions the subjects were asked to complete them on the spot. Reinforcement for good contracting performance or punishment for poor performance was avoided. The teacher only requested that the subject fill in the
missing information. At the end of the period the teacher would check the subject's work to determine if the task(s) had been completed, noting completion or failure to complete on the proper space on the form. Review information on appropriate behaviors was also noted at that time.

Condition C was essentially the same as condition A. However, in this condition the student-staff members checked over the contract form to see if all components were present. If any were missing the students were to fill in the omissions. The monitor remained with the subject until the correction was made. If the student refused to make the correction the monitor recorded the incident on the subject's contract and left. Punishment and reinforcement for contract quality was again avoided. The end of the hour contract check was still done by the teacher.

In condition A the student monitored his or her own contracting. No one approached these subjects at the beginning of the hour to determine contract completeness. However, the end of the hour contract check was again done by the teacher. At no time was the subject given feedback about contract completeness.

The determination of a complete or incomplete
contract became more difficult with contract component omissions. When this occurred an attempt was made to determine task completion from the information included. For example, if a task description said, "do my math", the teacher requested to see the subject's work and asked if it was complete. This procedure was also applied to the two other conditions.

Each subject went through the three treatment conditions in different orders, but only two subjects went through any one of the six orders of the three conditions. The order and subject assignment were randomly determined.

The dependent variable was the number of proper contract components present per day. There were a total of 10 components possible. These were as follows:

1. date
2. projected completion time for the first task
3. class specified for the first task
4. operation for first task
5. materials needed for first task
6. overt product for first task
7. initials on first task
8. all tasks for that day contained that day's date
9. projected completion times included for all tasks
10. total time projected for all tasks equalled or
exceeded 35 minutes
All data were summarized each day on a data sheet (see Appendix C).

**Daily Procedure**

At the beginning of the period all students entered the room and found the folder containing their contract from a stack at one of the front tables. They then sat in their assigned seat and filled out their contract as attendance was being taken. After about five minutes the teacher moved around the room and collected all contracts except those of people in the self-monitoring condition. Contracts were then checked at a desk at the front of the room. (Student staff reliability was also done at this time.) When the reliability check was completed he gave the student staff their folders to check. At this time the data for the teacher-monitored and student-staff monitored subjects were recorded. When the staff completed checking the contracts they would return to any subject (in conditions A and B) having an omission and request that the omission be corrected. If a student did not fill out the contract form at all s/he was asked to do so within three minutes. If the student failed to comply s/he was given a detention. The student-staff then turned in their data sheets for the
day and were free to either work in the room or go to the library. For the next 30 minutes the teacher supervised the room and noted appropriate and inappropriate classroom behavior.

At ten minutes prior to the end of the class the teacher checked the students for task completion. Students having completed contracts were occasionally praised. Those failing to complete them were not punished though. This was consistent for all students in the class. Following this check the students were allowed to quit working, and talk if they wished. At this time the teacher also noted the review information on the back of the contract form. Students were allowed to leave the room when the bell rang. Data for those students in the self-monitoring condition were recorded during the next period.

Student-Staff

Experimental condition C required student-staff members to review the subjects' contracts and correct them if necessary. The student-staff were six freshman and sophomore students from the same guided study class at the school. Student staff members were selected based on their interest, willingness to participate, and
regular attendance. No special criteria were used other than have freshman or sophomore status. This placed them at approximately the same level as their peer subjects. Student-staff members were exempt from contracting, but were still required to study quietly when they were not working on a monitoring task.

Student-staff members were trained in a two day procedure by the experimenter. They were first taught how to write a complete contract. They were then given a series of ten contracts in which particular components were missing, and asked to identify those missing components. All student-staff members passed the exercise with at least 90% accuracy.

The students were first taught how to perform in their first experimental condition by the computer program. Subsequent reminders of requirements in succeeding conditions were delivered by the teacher. Students were in the first two phases for ten days, and in the final phase for seven days.
CHAPTER III

RESULTS

Figures one and two represent the number of contract components specified by each subject each day. When each subject's data in each phase were averaged it was found that 7 of the 11 subjects showed mean phase increases as they progressed through the study, regardless of the order of the experimental conditions. The data of those subjects not showing such an effect were also analyzed to determine if dropping a single low data point might modify the phase means to yield the same results. To do this the experimenter studied each subject's data for phases that contained a single data point that differed by more than three points from the next lowest point. This point was then dropped, and the remaining points averaged. Although some data underwent such a manipulation, the resulting means did not produce the sequential mean increase seen in the other subjects.

Secondly, data points across all subjects in each of the experimental conditions were averaged. The resulting condition means were 7.4 for the self-monitoring condition, 8.4 for the teacher monitored condition, and 7.7 for the student-staff monitored
Figure 1. Number of Contract Components Correctly Included Each Day for Each Subject
Figure 2. Number of Contract Components Correctly Included Each Day for Each Subject
condition. These results show that the highest performing group was the teacher monitored, followed by the student-staff monitored, and the self-monitored respectively. However, these groups differed by only about one point. An analysis of variance run on this data indicated an insignificant difference between the three experimental condition, $F(2, 8) = 1.908, p = .174$.

It was also noted that the four subjects who started the study in the self-monitoring condition did much poorer than those that had the condition in their second or third phase. Their mean for this condition was 6.0. It was questioned to what extent this lowered the mean for that condition overall. To test this the mean for the self-monitored condition was again calculated. However, this time the scores of those subjects who were subject to that condition in the first phase were left out. The new mean score for the condition was 7.9.

In order to examine the variability in individual performance across all subjects and conditions the highest and lowest individual data points as well as the highest and lowest mean condition scores were examined. Individual data points ranged the full continuum of scores, from zero to ten. The lowest mean score for a phase was 3.6 (found in a self-monitored condition). The highest was 9.7 (again found in a self-monitored condition).
condition). This resulted in a 6.2 point difference. It was noted however that the low score was produced by a subject who scored overall much lower than the rest of the subjects. When this low score was removed, the result was a 3.2 point spread.

To determine what effect the training program had on initial performance the first two data points for all subjects were examined. Particular attention was given to those subjects in the self-monitoring condition since those subjects received no corrective feedback from a staff member. It was found that subjects began contracting by including an average of 6.8 components, with a range of from two to nine components. Those subjects that started the study in the self-monitoring phase showed an average of 5.8 components with a range of from two to ten components.

Finally, individual contract components were examined to determine which components were omitted the most frequently. Figure three shows the percentage of total contracts containing each component. The data show that most contract components were reliably included. However, students seemed to have particular trouble with those components included in the task description. For example, the task source was included only 57% of the time. The operation done on the materials only 44% of
the time, and the resulting product specification only 32% of the time.
CHAPTER IV

DISCUSSION

This study supported the notion that teacher monitoring of student behavior is unnecessary to maintain student contracting performance. Consistent with Glynn (1970), and Redmon (1981) students seem able to monitor their own contracting behavior. In support of the peer tutoring literature reviewed by Bloom (1976) and Ehly and Eliason (1980), it was shown that student-staff monitoring can be used to maintain existing contracting behavior at high levels. It was also noted that the behavior could be taught in a relatively short period of time.

The study progressed quite close to as planned. However, there were a few variations. One of the subjects was dropped from the study due to his moving out of the district. He was not replaced because (1) there was not another freshman or sophomore student available and (2) data collection was already well under way. Secondly, the last phase of the experiment had to be shortened to seven data points. Due to Good Friday it was initially planned to only have a nine day phase. However, a snow day as well as an unanticipated teacher
conference day also cut down the data.

It was also planned to have the student-staff members take the data for those subjects that they monitored. To this end they received the training described above. However, during the first week of data collection it was observed that their reliability was quite poor. Although no reliability data was collected, the experimenter noted many discrepancies between the student-staff and teacher's data. For this reason it was decided to have the experimenter also take data on the student-staff monitored subjects' performance. This should not have affected those subjects' performance in that the subjects were not aware that the teacher was taking data on them.

One of the most significant results noted was that contracting performance increased with the passage of time. Seven of 11 subjects showed a mean phase increase as they proceeded through the experimental conditions. This effect could be attributable to a number of factors. First of all it is possible that performance increased as a result of the feedback and experience that occurred with the passage of time. It is also possible that contracting performance increased as a result of the end of the semester drawing near. Students might have had an increasing work load during the period...
which would have given them more to contract for. They may have also become concerned about an end of the semester evaluation of their performance.

A lack of significant statistical difference between the three monitoring conditions was also noted. This is quite consistent with much of the literature as cited above. For example, both the literature on self-monitoring and the literature on peer tutoring supported the contention that the systems could be used to monitor student behavior. Similarly, this study showed that each system could produce a high level of contracting performance. It also showed that none of the three conditions was statistically superior to the others. These results have significance for a guided study center in that it appears possible to effectively monitor student contracting behavior without the tremendous expenditure of teacher time and energy. This would also benefit the students at the center by allowing them more individual contact with the teacher.

The data also showed that subjects entering the first phase of the study in the self-monitoring condition did not include as many contract components as did those subjects beginning the study in a different experimental condition. Further, both the teacher-monitored and the student-staff monitored conditions
produced similar contracting performance in the first phase. These findings suggest that a high degree of contracting performance might be achieved faster by beginning students with teacher or student-staff monitoring, and then fading the monitoring as performance increases.

An inspection of the first two data points for all of the subjects, and especially those subjects who began the study in the self-monitoring condition showed that performance became better as the study progressed. This could have been attributable to two factors. First of all it is possible that the computer program did not teach to criterion. The program was initially set up to first teach how to specify the contract components, and then provide a test of those skills. Subjects failing items on the test would be remediated by sending them back through those portions of the program that were missed. The computer was programmed to do this until the student reached a 100 percent criterion on the test. However, due to limited access to the program, and a computer hardware change just prior to the start of the study, each subject was only run through the program once. At that time it was decided to supplement the training with the extra worksheets and group presentations described above. The fact that the
subjects in the initial self-monitoring phase did poorer than those subjects in other initial phases might be explained by the possibility that those other subjects got corrective feedback initially. This possibility is also supported by the fact that the only self-monitoring condition showing poor performance was the first one. The contention is also supported by the type of contract items that were missed most often. If the computer program had taught all of the skills to criterion one would expect to see omissions rather evenly distributed across the items. However, the data show that most of the omissions centered on those components having to do with the task description. The other components were probably easy to master. For example, a student should have been able to tell if he had included the date for a task or specified how long it would take him to complete the task. However, the task description components are less obvious. Past contracting experience of the experimenter has shown that this area is particularly troublesome for students to master.

A second possibility is that the subjects had the necessary skills, but had to be motivated to include all of the components. At the beginning of the study there was a great deal of student opposition to contracting. The students in the class had never had to contract for
study hall work before. And some of them remarked that they felt as though they were being treated like children because they had to specify their study hall behavior. Many of them also felt that the contracting procedure was too time consuming. However, as the study progressed contracting performance increased and vocal opposition decreased.

The inspection of the ranges of contracting performance showed that almost all subjects included a large number of the contract components each day. Thus it seems that regardless of the monitoring system used, the above procedure resulted in the subjects including a large number of contract components in a short period of time.

The data also showed that student staff can be effectively used to maintain student contracting behavior. In contrast to Stinson's (1981) and Redmon's (1981) success with student-staff in the Guided Study Center, attempts to use student-staff in the Guided Study Class met with minimum success. The present success could have been accomplished for two reasons. First of all the staff was not required to consequate student behavior with strong punishers or reinforcers. During previous attempts it was found that the student-staff would not punish their peers' behavior, but were
rather allowing any contract, no matter how poorly written, to be accepted.

The present system also provided an incentive for being a student-staff member. After the student-staff members monitored their one or two students they were free to work without a contract in either the Guided Study room or the library. The other students in the class were not allowed to go to the library unless their work demanded that they do so. They were also required to contract every day. In the past the student-staff received no privileges other than exemption from contracting. In addition their work load was much higher. Many had to monitor up to ten students.

It should be noted that even though strong punishers or reinforcers were avoided when checking for contract components, more subtle contingencies may have affected subject performance. First of all it is possible that the interaction between the monitor (either the teacher or a student-staff member) and the subject may have been punishing or reinforcing to the subject. For example, it may have been aversive to a student to have his peers see a monitor prompt him to correct his incomplete contract. It may also have been aversive to have the teacher check a poorly written contract to determine if the task had been completed.
Secondly, it may have actually been more effortful and aversive to correct a poorly specified contract, or check it for completeness. For example, the students in the student-staff and teacher-monitored conditions knew that they would have to fill in all omissions anyway. And at the end of the hour, those students in the self-monitoring conditions may have found it aversive to have to vocally explain what s/he did that hour so that a contract with omissions could be evaluated for task completion.

Thirdly, the contract provided a permanent product of the subjects' behavior and performance. Therefore, even though they may not have been immediately consequated for their behavior, the contract remained for a possible later evaluation and consequation in the form of a grade or parent report. It should be noted that at the beginning of the semester the students were given a vague notification that their classroom performance and behavior would be evaluated at the end of the semester.

Fourthly, the possibility exists that the subjects in the self-monitoring condition may have suspected that data was being taken on their behavior. No indication of this was noted.

And finally, one strong contingency did exist.
Students that completely failed to fill out contracts were given a detention.

The literature showed that student behavior can be increased through the use of feedback alone (Hynd and Lahey, 1974; Van Houten et al., 1975). For example, the subjects in the self-monitoring studies took notes on their own behavior. However, in this study, it is doubtful that the students actually ever examined their own contracts to determine if all of the components were present. The development of such a self-monitoring system would be the basis for a separate study itself. However, considering the success of monitoring programs (Gottman and McFall, 1972; and Johnson, 1972) and the success of self-reinforcement (Glynn et al., 1973) it could have the effect of improving contracting performance in the self-monitoring condition.

Additional research is needed to add information for responding to a number of questions. First, it would be productive to see if self-control behavior would maintain for longer periods of time than it did in the Redmon (1981) study. The present study utilized only ten day phases. It is quite possible that if the phases had been extended, the continued behavior would drop off. This would have signifi-
the guided study center because contracting behavior would have to be maintained for at least a semester.

Secondly, as mentioned above, the utility of the training program was questioned. The computer program itself would need to be systematically validated. Such a validation might reveal improved teaching methods that could greatly facilitate learning the material. An improvement in this area would also help to determine whether or not the initially poor performance of subjects beginning the study in the self-monitoring phase was due to motivation problems, or merely poor contracting skills.
# Appendix A

## Guided Study Contract Form

<table>
<thead>
<tr>
<th>Student Name</th>
<th>Period</th>
<th>Date</th>
<th>Time</th>
<th>Needed</th>
<th>Initials</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contract 1 - Description/Criterion</th>
<th>Std:</th>
<th>Mgr:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contract 2 - Description/Criterion</th>
<th>Std:</th>
<th>Mgr:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contract 3 - Description/Criterion</th>
<th>Std:</th>
<th>Mgr:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contract 4 - Description/Criterion</th>
<th>Std:</th>
<th>Mgr:</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contract 5 - Description/Criterion</th>
<th>Std:</th>
<th>Mgr:</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contract 6 - Description/Criterion</th>
<th>Std:</th>
<th>Mgr:</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Appendix B

Writing Contracts

Example 1:
Today I will answer questions 1-5 on page 20 of my book for History class. I will show my work when done.

Example 2:
Today I will read pages 100-200 in my book for Civics class. I will outline what I read.

Each task must contain:
1. The name of the class that you are doing the work for.
2. What you want to do
   A. read
   B. outline
   C. answer
   D. etc.

Please do not use the word "do". It doesn't tell what you are going to do.

3. What you are using to do your assignment. This includes:
   A. The source (book, workbook, etc.)
   B. The spot in the source (page numbers, exercise numbers, question numbers)

4. Some observable product of what you did. If you did something that you could hand in, just say, "I will show my work". (See example 1 above)
   If you read or studied you can:
   A. Outline your work (see example 2 above)
   B. Answer some questions about the work
   C. Summarize what you read

Example 3:
Today I will finish drawing my Art project. I will show my work when done.
Appendix C

<table>
<thead>
<tr>
<th>Date ______</th>
<th>Student's Name _____________</th>
<th>Monitor ______</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Did student include the date for the first task?</td>
<td>yes no</td>
<td></td>
</tr>
<tr>
<td>2. Did student include the time for the first task?</td>
<td>yes no</td>
<td></td>
</tr>
<tr>
<td>3. Did student include class for the first task?</td>
<td>yes no</td>
<td></td>
</tr>
<tr>
<td>4. Did student include source for first task?</td>
<td>yes no</td>
<td></td>
</tr>
<tr>
<td>5. Did student include specific action for first task?</td>
<td>yes no</td>
<td></td>
</tr>
<tr>
<td>6. Did student include observable product for first task?</td>
<td>yes no</td>
<td></td>
</tr>
<tr>
<td>7. Did student initial first task?</td>
<td>yes no</td>
<td></td>
</tr>
<tr>
<td>8. Were all tasks dated?</td>
<td>yes no</td>
<td></td>
</tr>
<tr>
<td>9. Were all tasks timed?</td>
<td>yes no</td>
<td></td>
</tr>
<tr>
<td>10. Do all times equal at least 35 minutes?</td>
<td>yes no</td>
<td></td>
</tr>
</tbody>
</table>
Bibliography


Birdwell, J. Behavioral contracts in reading and study. *Reading and Improvement*, 1972, **8**, 92-94.


Dee, V.D. Contingency management in a crisis class. *Exceptional Children*, 1972, **38**, 631-634.


