8-1985

The Effects of Teacher Directed Small Group Instruction on Quality and Control of Behavioral Contracts in a Large Study Section of High School Students

Laurie A. Thompson-Montgomery

Western Michigan University

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

Part of the Psychology Commons

Recommended Citation


http://scholarworks.wmich.edu/masters_theses/1442

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.
THE EFFECTS OF TEACHER DIRECTED SMALL GROUP INSTRUCTION ON
QUALITY AND CONTROL OF BEHAVIORAL CONTRACTS IN A LARGE
STUDY SECTION OF HIGH SCHOOL STUDENTS

by

Laurie A. Thompson-Montgomery, Ed.S.

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

Western Michigan University
Kalamazoo, Michigan
August 1985
THE EFFECTS OF TEACHER DIRECTED SMALL GROUP INSTRUCTION ON QUALITY AND CONTROL OF BEHAVIORAL CONTRACTS IN A LARGE STUDY SECTION OF HIGH SCHOOL STUDENTS

Laurie A. Thompson-Montgomery, Ed.S.
Western Michigan University, 1985

Individualized education has been described as the ideal teaching methodology. The purpose of the present study was to individualize teaching procedure through the use of behavioral contracts in a high school guided study class. The goal of the teacher-directed, small group instruction was to teach students the components of a specific contract task. Following this instruction, all students' contracts improved in the percent meeting content criteria. In addition to improvement in contract content, student on-task behavior also increased. Further, the number of student assignments completed on contract which were received by teachers increased after training. It appears that the use of teacher-directed, small group instruction in the context of a large study class was effective in producing improved contracts, on-task behavior, and increased assignments turned in to classroom teachers. It was recommended that the investigation of additional variables be accomplished.
ACKNOWLEDGEMENTS

I would like to express my appreciation to many people for their assistance in completing this project. I thank Drs. Howard Farris, Richard Malott and Galen Alessi for their guidance and feedback. Special thanks are due to Dr. Howard Farris for his continual support, advice, and time.

In addition, I would like to thank Dr. Dave Lennox and Steve Ragotzy for their patience and humor that kept me smiling. I would like to thank Becky Fry for being such a receptive teacher.

Most importantly I would like to thank Donn, Chelsea, and my parents who found patience, understanding, and tolerance when all were tested to the limit while completing this project.

Laurie A. Thompson-Montgomery
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.
Thompson-Montgomery, Laurie Anne

THE EFFECTS OF TEACHER DIRECTED SMALL GROUP INSTRUCTION ON QUALITY AND CONTROL OF BEHAVIORAL CONTRACTS IN A LARGE STUDY SECTION OF HIGH SCHOOL STUDENTS

Western Michigan University

University Microfilms International

300 N. Zeib Road, Ann Arbor, MI 48106
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. Dissertation contains pages with print at a slant, filmed as received ______
16. 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>I. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>II. METHOD</td>
<td>12</td>
</tr>
<tr>
<td>Subjects</td>
<td>12</td>
</tr>
<tr>
<td>Setting</td>
<td>12</td>
</tr>
<tr>
<td>Materials</td>
<td>12</td>
</tr>
<tr>
<td>Procedure</td>
<td>13</td>
</tr>
<tr>
<td>III. RESULTS</td>
<td>20</td>
</tr>
<tr>
<td>IV. DISCUSSION</td>
<td>28</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>32</td>
</tr>
<tr>
<td>A. Sample Contract</td>
<td>33</td>
</tr>
<tr>
<td>B. Discrimination contract presented during</td>
<td>35</td>
</tr>
<tr>
<td>the first day of the training package</td>
<td></td>
</tr>
<tr>
<td>C. Discrimination contract presented during</td>
<td>37</td>
</tr>
<tr>
<td>the second day of the training package</td>
<td></td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>39</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

1. Percent of Weekly Contracts Meeting Criterion for Groups 6, 4, and 1 ........................... 23

2. Percent of Weekly Contracts Meeting Criterion for Groups 3, 2, and 5 ........................... 24

3. Percent of Students Observed On-task .......................... 25

4. Percent of Contracted Tasks Received by Teachers for Subjects 1, 2, and 3 ........................... 26

5. Percent of Contracted Tasks Received by Teachers for Subjects 4, 5, and 6 ........................... 27
CHAPTER I

INTRODUCTION

There have been many attempts to improve student productivity both in and out of the classroom. This appears to be a consistent goal of educators. A variety of methods have been used to personalize teaching ranging all the way from homework to various attempts to individualize instruction. Homework, as a teaching-learning activity is most often completed outside the classroom. It is assumed the homework will improve academic skills and the development of independent study skills through facilitation of extra practice of procedures taught in the classroom. A number of people have investigated the results of assigning tasks for students to complete outside the classroom. They have found, generally, that homework completion and better academic effectiveness are highly correlated (Felixbrod, 1973; Harris and Sherman, 1974; and Shaklee 1963). Another researcher reviewed numerous articles describing the effectiveness of homework (Goldstein, 1960). Based on these data he suggested regularly assigned homework results in higher academic achievement. Various other students describe the adverse effects of failing to assign homework to students. One such study (Buffie and Jenkins, 1971) suggested that a no-homework policy applied in an elementary school produced unfavorable academic performance of those
students when in high school setting. This may be due to the early establishment of the various patterns which contribute to the student's academic career, with study skills being among some of the most important. Advocators of regularly assigned homework assume that the activities found in homework, such as the use of study routines, the fostering of independent work ability, effective time management, and self-discipline, all contribute to the student's total education.

Among the studies reported, however, there is inconsistency in the description of the homework task (task specification), the identification and measurement of academic skills, and inadequate description of the presentation techniques used by the educators involved. Harris and Sherman (1974) studied homework and found the assignment of tasks to be completed outside the classroom beneficial to those subjects studied. The authors also studied the effects of a contingency procedure on homework. They found that positive consequences for accurate homework assignments and negative consequences for tasks not completed resulted in improved accuracy and a high rate of homework tasks turned in. The authors concluded that setting contingencies on homework requirements, such as accuracy levels, can enhance student scholastic achievements.

In addition to the importance of contingencies on accuracy of homework assignments, just the amount of time students spend working on tasks outside the classroom seems to affect academic performance. Keith (1982) investigated several variables associated with student
levels of performance. He demonstrated a noteworthy relationship between students' grades and the amount of time spent doing homework assignments. Another study by Blakeman (1979) investigated additional variables related to general classroom performance. The author examined the effects of parental prompts, homework assignment completion, and contingency contracting on spelling accuracy levels. The study was conducted in a classroom of special education students. The findings demonstrated that contracting for group accuracy with remediation options significantly increased the spelling accuracy level in the classroom.

The public school systems continue to require students to complete tasks outside the classroom, such as studying spelling words (Blakeman, 1979). The prior research cited also summarizes some of the procedures for improving student academic performance in addition to homework such as contingency contracting. These studies generally show favorable results. Another approach to facilitating student's instruction and homework entails the utilization of small group instruction. Keller (1968) developed the Personalized System of Instruction (PSI) and Engelmann and Carnine (1982) describe the model of Direct Instruction; both utilize a small group approach during instruction. Instrumental in the PSI program was the practice of peer tutoring in that other students served as classroom monitors, assisting in grading of homework and quizzes, and were available to aid other students with assigned tasks. Keller's reasoning behind the use of these procedures was that each student
could work independently and yet receive personalized/individualized instruction and attention. Engelmann and Carnine's model emphasized individualized instruction through the use of highly sequenced behavioral objectives and in-class teacher directed activity focusing on small group active responding. These individualized procedures have produced notable results (McMichael and Corey, 1969; Harris and Sherman, 1974). The outcome of individual instruction based on clearly measurable behaviors provided researchers with the documentation needed for instructional development. This is of great importance to the fields of Education Psychology and Behavior Analysis. Historically, one of the most significant attempts to improve instruction efficiency for individuals was Skinner's (1961) early work in programmed instruction. It has had a significant influence on all of education.

In 1961 Skinner recommended utilizing what he described as teaching machines. He favored this as a significant method of individualizing the instruction students receive. The machines presented small, defined units of instruction to students in a sequenced manner. The student was required to read the instruction and asked to respond. The machine could then determine if the student response met the criteria identified. Although Skinner's idea seems capable of producing the benefits of individualized instruction, various educational groups felt that teaching machines would be difficult and expensive to implement (Markle, 1964).
Educators are determined to resolve the conflict of how to best individualize instruction to increase productivity both in and out of the classroom. However, frequent disagreement on the topic of instruction arises. Should one teach to the individual student or the class (Tolbert and Frase, 1972)? Group instruction tends to concentrate attention and instruction on the hypothetical average student. This approach to education falls short in many areas; some students are required to perform above their current ability levels and other students are required to complete tasks that are below their ability level and therefore serve no educational purpose.

Engelmann and Carnine (1984) advocate the importance of providing instruction based on the student's academic level. They suggest that students are best served when they are working at levels that allow them to obtain success and that challenge them in mastering tasks. Individualized instructional programs stress focusing on student needs and developing teaching techniques and strategies that address individual student differences.

Blake and McPherson (1969) define the model teaching strategy as one incorporating individualized instruction. They list five traits as key factors to consider: (1) the teacher and the student should be involved in selecting the learning transaction, (2) the student should proceed at his/her own pace, (3) the teacher should evaluate each student's progress frequently, (4) the teacher should provide remedial and supplementary instruction when necessary, and (5) the teacher should have prepared materials to allow independent
instruction to occur. Engelmann and Carnine (1984) recognize these same needs and provide one additional characteristic of effective instruction, that is, the teacher should instruct to a specified criterion and required the mastery of tasks before proceeding to higher level activities. Thus Skinner (1961; 1984) Keller (1968) and Engelmann and Carnine (1984) along with Blake and McPherson (1969) all advocate the use of individualized instruction.

Incorporating the advocated techniques into the public school systems has taken many different forms. One method, described earlier, (Engelmann and Carnine, 1984) require mastery of tasks before a student was allowed to progress. Buffie and Jenkins (1971) incorporated this same principle in a non-graded school. The authors used a mastery criterion level as the indicator for each student to progress.

Although programs described above reported success, implementation of the various approaches in education has been sparse and generally not long lived. Many factors contribute to the general lack of support for the kinds of programs noted. All involve extensive changes in the present instructional systems. Major changes, such as these, can result in resistance from the staff (Piersel and Gutkin, 1983) and a substantial financial burden, additional record keeping, material development, frequent assessment, and can create increased work demand on teachers.

A promising solution to some of these problems is the use of contingency contracting mentioned earlier. Homme, Csanyi, Gonzales
and Rechs (1969) noted that each student possesses heterogeneous behavioral repertoires. That is, the proficiencies and deficits of one student vary in degree to that of another student with each student having different educational needs. They pointed out that a contract can be made to meet the unique needs of each individual student and that contracting may also provide the basis for self management skills in that the responsibility for details of the educational activity is shared between the teacher and the student. Contracting is also very easy to use.

Contracts offer great flexibility toward individualization and result in many benefits to both teacher and student. Contingencies and performance criteria are pre-specified, active responding is required and a permanent product is obtained.

Contracting is a technique that can also be used to structure behavior so that the tasks involved and the criteria for evaluation are clear and explicit. They are typically written directly into an agreement that is both understandable and acceptable to each party involved (Kazdin, 1975). A contract allows each student to work on any academic task that is appropriate, and students with different skill levels can contract to complete different amounts of the same work. Contingency contracting avoids the problem of delayed consequences following task completion in that some consequences can be immediately applied to everyone, regardless of the work they have contracted to do. In addition, contracting can be used to break larger, more difficult tasks down into smaller and more
manageable components. According to Fox (1966) working on long assignments essentially places the student on a very large intermittent schedule for reinforcement which to some extent is solved by breaking the task up into smaller units resulting in a much higher density of reinforcement. This may avoid some of the negative effects of long work periods without feedback or reinforcement.

There are additional positive effects of contingency contracting. Arwood, Williams, and Long (1974) demonstrated that effective contracting procedures can make a class more structured and consistent. They allow a student to clearly understand what is expected of him or her, and what will happen as a result of that behavior. Contracting also promotes individual success. Each task is made clear and tailored to the student's skill level resulting in a higher probability of successfully completing the task. It also gives the student a role in determining the details of learning (Warner and Thrapp, 1973). 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 point contingencies in a token economy than when the contingencies were teacher controlled. Contingency contracting also provides educators with a record keeping device (Redmon, 1981). The contracts enable all parties involved to see exactly how the student spent his or her study time. In addition, contracting provides students with the opportunity to take the initiative and responsibility for learning (Amdsen, 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. It has been demonstrated to be effective in the area of behavior change in the classroom (Amdsen, 1970). Contingency contracting has also been used successfully in a variety of educational levels (Polzynski, 1977). Authors describe the successful application of contracting procedures in a regular education classroom (White-Blackburn, Semb, and Semb, 1977); in elementary schools (Brigham and Amith, 1973), in junior high schools (Berta, 1974), and in the senior high school (Yarber, 1974). Contracting has been employed in numerous additional situations (Homme et al., 1969). Other people interested in the development of contracting demonstrated the application with exceptionally high achieving students. Contracting was demonstrated to increase appropriate behavior with these students. In a similar study to Homme et al., (1969) investigators used contracting to increase appropriate behavior in a sixth grade class (Arwood et al., 1974). In addition, White-Blackburn et al. (1977) found contracting effectively increased the number of tasks completed daily, improved weekly grades, and increased on-task behavior of a sixth grade class.

Typically, a contract includes the behavior the student must perform and the consequences if the task is or is not performed according to a pre-specified criteria (Kazdin, 1975). The contingency contract is a method of providing positive reinforcement; to the learner in that one must identify the reinforcers and produce
a specified response to elicit the reinforcement (Stuart and Lott, 1972). The terms of the contract may be controlled by the teacher or the student.

Homme et al. (1969) discussed the importance of consequences. He recommended that reinforcing events be utilized to motivate students and reinforcers—should be specified in advance of evaluation. He also emphasized the importance of agreement between the teacher and the contract manager and the individual student.

There are several contributions of contracting strategies. Wilson and Gambrell (1975) stated that contingency contracting maintained high levels of student involvement, participation and motivation. Engelmann and Carnine (1984) advocate similar principles supporting the notion that children learn more willingly and satisfactorily if they actively participate. Homme et al. (1970) add that if the student and the teacher are actively working toward achievement of the same goal, learning is likely to occur. Previous studies on contracting demonstrate that on-task behavior can be increased. One method advocates the use of students in the development of classroom management schemes (Cantrell, Cantrell, Huddleston, and Woolridge, 1969; Brigham and Amith, 1973; Arwood et al., 1974). In addition, contracting brings structure and consistency to the classroom environment by specifying contingencies on paper. Involving students appears to enhance the reinforcing value of the contingencies (Arwood et al., 1974).
School contracting has repeatedly been shown to be useful in improving academic achievement and social conduct (Clark, 1978). Cantrell et al. (1969) and Redmon (1981) used contracting for intervention in a diagnostic and remedial center for an entire school. In addition, 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.

It appears that contingency contracting can be used to improve group instructional procedure, and is effective across a variety of student ages and levels. However, few studies utilize contracting procedures specifically for the management of large groups of students in a classroom. Various studies have demonstrated contracting to be effective in changing levels of appropriate behavior and improving academic performance. Generally, these studies contracted for the desired skill directly. Few, if any, mention the possibility of secondary effects of contracting. The purpose of the study is to determine the extent to which a large student group (N=42) can be taught on an individual contract basis using teacher-instructed small group sessions, and in addition, secondary effects resulting from effective contracting will also be monitored. Also of interest is the extent to which on-task behavior is improved and contracted assignments completed and turned in to respective teachers for evaluation and credit.
CHAPTER II

METHOD

Subjects

The subjects of the study were 42 students attending a small, rural high school. They ranged in grade level from ninth grade to twelfth grade. The subjects were chosen based on their voluntary enrollment in the same sixth period Guided Study Center (GSC/Study Hall).

Setting

The experiment was conducted in a small rural public school system with a study hall class that met in the high school cafeteria located in the middle of the school building. The classroom was approximately 24 by 48 feet and had two glassed walls facing the hall. It contained five rows of six tables, each of which could seat for students. Only the students and the teacher were present in the classroom.

Materials

The materials to be used in the experiment include: (a) contract forms (see Appendix A); (b) data sheets for recorder;
(c) graphs for experimenter, teacher and student; (d) teacher grade books; and (e) student grades.

Procedure

The intervention consisted of a training package the teacher presented to a small group of approximately 6 students, over a 6 day period, gradually reducing or "fading out" instruction. The training package consists of the following:

Day 1: The teacher presented the students in the group with two contracts (Appendices B and C). The teacher told the students that one contract was a "good contract" in that it was well written and contained all the information required and one contract was not as good. The teacher asked each student individually to indicate which was better. The students were then asked to tell why they thought one was better than the other. The teacher then presented the five components of a well written contract (as indicated earlier). She then asked each student to identify the task for which they were going to contract that day and asked them to orally describe the task. The teacher prompted a detailed description of the task contract as necessary. After each student had orally described a specific task, the teacher instructed the students to fill out their contracts accordingly. The teacher checked each contract and again prompted specification as needed. This task took 15 to 25 minutes, at which point the teacher re-checked contracts
for the group and moved on to check those for remaining class members for task completion.

Day 2: The teacher presented each student with two contract (more complex than ones used the previous day). The students were again asked to select the better of the two contracts and describe why one was better. The teacher prompted students to use the five components of a good contract as the basis for their decision. The students were asked individually to describe the academic task they were to complete during that class period with the teacher again prompting task specification, where necessary, and instructed students to complete their contracts. The remaining class time was used by the teacher to check all class contracts for task completion.

Day 3: The students were presented with no model contracts on day 3. Instead, they were instructed by the teacher individually to describe the task on which they would be working and to fill out their contracts accordingly. The teacher prompted specificity if necessary.

Day 4: As a group, the teacher asked students to fill out their contracts. Each contract was read by the teacher; if the description of the activity met specification criteria, she nodded her head and moved on. If the contract did not meet criteria, she simply said "specify".
Day 5: The teacher gave no oral prompts, other than telling students to fill out their contracts. She stayed in close physical proximity to the intervention group.

Day 6: The teacher presented each individual group member a graph of the percent of the contracted task that met specification criteria since beginning (baseline). She indicated where on the graph she began working with the student on contract specification. She told the students they would see the graphs for that week and the next week, but after that, the graphs would be seen only periodically. Graphs were shown once a week for 2 consecutive weeks, then every other week, and gradually not at all.

Day 6 was also day 1 for the next group.

All student contracts were collected and scored weekly. Each contract was evaluated and scored on the basis of the contract specification criteria and assigned a percentage for those present. A task was considered specific if it was: (a) academic, i.e., it must be for a class; and (b) produced a permanent product, e.g., something in writing that can be monitored. For example, if a student read for the 50 minute time period, he/she must write an outline or summary of material read. Each student received a "percent quotient" for the week of contracted tasks. This was determined by dividing the total number of specific tasks contracted by total number of tasks contracted. The experimenter provided separate graphs for each student, and graphed each group's behavior in the same manner (total group specific tasks contracted divided by
total number of contracted tasks). A staff person also evaluated all of the contracts independent of the experimenter, for reliability purposes. Reliability was reported as number of agreements over number of agreements + number of disagreements x 100.

In addition to contract specification, on-task behavior was monitored. Twice a week for the duration of the study, on randomly selected days each week, the experimenter and another graduate student recorded on-task measures during class time. A time sampling method was used. This involved the observers monitoring each subject for 15 seconds, recording if he/she was on-task (15 seconds), then move on to the next predesignated individual; all subjects were monitored in this manner. Reliability was recorded using the same procedure described above. Reliability was taken for 100 percent of the observation periods.

One randomly selected subject from each group was chosen to determine the percent of contracted tasks submitted to their classroom teachers for credit. This was accomplished by tracking each student's contracted assignments to the respective teacher record book and determining if the subject had turned in the contracted assignment.

In order to carry out this procedure in the study class the experimenter met with the teacher during the first week of classes in the fall and described the study. The experimenter told the teacher that the students would be randomly assigned to 1 of 6 groups. It was the teacher's responsibility to distribute the
contracts to all students at the beginning of the hour, check for
designated group's contracts, implement the training package with
the assigned group, check the designated group's contracts at the
end of the hour and mark them "complete" or "incomplete" as appro-
priate and collect contracts daily at the end of the class hour.
The experimenter collected contracts at the end of each week. In
order to evaluate specific assignments and due dates, the experi-
tmenter obtained and recorded "grade" information for each subject by
photocopying the teacher's record books.

The dependent variables and independent variables for the study
were as follows:

Dependent Variables: (a) the percent of group contracts that
met task specification criteria per week, (b) the percent of on-task
behavior observed each week, and (c) the percent of contracted
assignments that were turned in each week, as recorded in teacher
record books. Task specification included the following: (a) Each
task must be academic such as math problems, biology objectives,
English assignments, etc. Non-academic behaviors included writing
letters, talking; (b) Students must include relevant page and
problem numbers; (c) Students must have a written summary or outline
of material read during the class period; and (d) Students must
include an estimate of the amount of time it would take to complete
each task. One task had to be completed before a contract for the
next task could be written.
On-task study behavior was also observed and measured. This was defined as: (a) the student sitting in his/her assigned seat, (b) the student must be engaged in academic behavior, and (c) the student's head must be oriented toward the table directly in front of him/her, either writing, or reading academic materials. Students were considered off-task when they were observed to be talking or laughing.

Various student assignments were also tracked to determine the percent of tasks observed that were turned in to their respective teachers.

Independent Variable: The independent variable was a training package consisting of teacher administered procedures over a 6 day period for each group.

All students were randomly assigned to 1 of 6 groups. The teacher was given a list of 3 groups (50% of the students) that were randomly selected as intervention groups for the week. The teacher then checked those students' contracts initially at the beginning and end of the class period. Consequences for each assignment-contract involved a daily review of the assignments described in the contract and evaluating the work as "complete" or "incomplete" for each specified assignment and circling "complete" or "incomplete" on the contract form. The remaining students (the other 3 groups) were told to initial their own contracts at the beginning of the hour, and to initial and sign their contracts at the end of the hour and to place them in a designated location. Once intervention began,
the teacher signed the contracts for all 3 of the randomly selected groups at the beginning of the class period.

Baseline data consisted of contracted product specification measures taken the first month of school and on-task measures taken randomly through-out the weeks of the study.
CHAPTER III

RESULTS

Figures 1 and 2 show the data for all six groups (42 subjects), across a 14 week period. Each point represents the mean weekly percent of each group to meet criteria for a specific product contracted. In order for each contracted task to meet product specification criteria, the student must have clearly specified the subject area, the task to be completed, the relevant page and/or problem number, and approximate time needed to complete the work. In addition, each task must have produced a written product in the form of a work sheet, problems, summary, or outline for the teacher to monitor. The total number of tasks to meet criteria was divided by the total number of tasks contracted. Descriptive statistics were tabulated weekly for each group.

The number of assignments contracted for each week ranged from 150 to 178 during baseline and from 176 to 183 during Intervention.

According to Figures 1 and 2, Group 3 showed the greatest mean gains in percentage points of weekly tasks meeting the criteria for contract specification. Group 2 had a gain of 62.45 percentage points. Group 6, 59 percentage point gain, Group 1, 58.75% increase, Group 5, 43.66% increase and Group 4 had the lowest percentage point gain of 41.5.
The results the training package had on student's classroom behavior as measured by a time sampling method are shown in Figure 3. Pre-intervention on-task behavior measures were not taken. Note the general upward trend of the curve. One possible explanation is that as each group became involved with the training package they were directed to complete assignments they contracted for, resulting in that behavior. Another possible explanation could be that as more students were working on assignments the environment of the guided study center changed. Following the training package, post intervention, the mean percent of students' on-task behavior increased to 86% of the time observed, as mean gain of 43 percentage points.

Finally, individual contracts were examined to determine the percent of student contracted assignments received to determine the indicated in teacher record books. Figures 4 and 5 show the percent of contracted task. As the graphs indicate, students' tasks were turned in to teachers more frequently following intervention. Prior to intervention many factors contribute to the fact that tasks were not recorded in the teachers' grade books. One reason could be that the contracted tasks were untraceable due to lack of task specification. For example, students may have only mentioned the subject they were going to work on that class period, thus rendering tracking the assignment impossible. Another possible factor could be that students simply did not work on the contracted task. The students observed turned in an average 84 percent more contracted
tasks after intervention. Subject 5 made the most dramatic gain of 91 percent increase, while subject 4 made the least gain of 77 percent.
Figure 1. Percent of weekly contracts meeting criterion for groups 6, 4, and 1.
Figure 2. Percent of weekly contracts meeting criterion for groups 3, 2, and 5.
Figure 3. Percent of students observed on-task. A time-sampling method of observation was utilized consisting of the experimenter and one additional person observing each student every 15 seconds for 15 seconds. Prior to the observational session the subjects were ordered to ensure consistent sequencing. (Arrows indicate cumulative intervention)
Figure 4. Percent of contracted tasks received by teachers for subjects 1, 2, and 3.
Figure 5. Percent of contracted tasks received by teachers for subjects 4, 5, and 6.
CHAPTER IV

DISCUSSION

The present study examined the effects of a teacher implemented training package on 42 high school students. The training package was devised to directly alter the students' contract content, in the form of increased task specification. The training package also sought to indirectly improve the environment of the study center, through increased on-task behavior, and indirectly affect the number of assignments received by teachers.

As observed in Figures 1 and 2, a significant increase in student task specification on the contracts following the training package was noted. The tasks students contracted for increased in task specificity from 41.5 to 63.45 percentage points. The data suggest that the classroom teacher was able to effectively implement the six day training package and maintain a high level of student contracted task specification after training. The utilization of small groups allowed the teacher to monitor group progress and provide feedback on contract content and maintain the regular classroom duties such as providing assistance on homework assignments.

Most importantly, the small group instruction allowed for individualization and facilitated accomplishment for both teacher and student as suggested by Engelmann and Carnine (1982).
One area of concern, in addition to the lack of productivity of the classroom prior to intervention, was the high level of off-task behavior. Consistent with White-Blackburn et al. (1977), the present study found that contracts successfully increased on-task behavior and daily assignment completion. Although White-Blackburn et al. (1977) had students directly contract for specific on-task behaviors, the present study suggests that manipulation of contract specification can increase on-task behavior.

Few studies examine the secondary effects of intervention procedure, such as the effect a procedure might have on behaviors that were not directly manipulated. Based on the assumption that task specification, small groups, teacher-instruction, and contracting provide necessary structure in the environment for effective academic performance, on-task behavior was observed across a 14 week period and an increase was observed. In the present study several explanations can be offered for increased on-task behavior. Perhaps the students were sensitive to the observers in the classroom, resulting in increased on-task behavior for those days observers were not present. It is more likely that the contracting environment increased the likelihood of study behavior. As the student contracts became more task specific, the students' on-task behavior increased.

The present study also investigated student on-site productivity. Although on-site productivity was not directly observed, the students' contracted assignments were monitored by the teacher,
and the feedback provided with regard to task completion was indicated on each contract. Reliability of teacher feedback and student task completion was not investigated in the present study. Future research in the area of contracting would benefit from such assignments were received by teachers after the training package was implemented.

In contrast with previous contracting procedures involving extrinsic reinforcers, the consequences in the present study involved circling "complete" or "incomplete" on the contract at the end of the hour in the GSC. Aside from these consequences, there may have been other implicit factors that affected the work completion; it is possible that the behavior may have been reinforced in the past for following specific instructions so that the specificity of the assignments or work to be finished increased the probability of contract completion.

Secondly, consequences in the form of feedback, results, and social approval/disapproval from staff members and the classroom teacher also probably affected contract completion rate to some extent. In the present study, a complete GSC contract may have resulted in approval from teachers and peers and maybe other consequences such as grades.

The contracting environment may have increased the probability of study behavior. The contract specified the task, the amount of work to be completed, and was signed by the subject and the teacher.
In this manner the contracts appeared to take on "official" contract qualities.

Additional research is needed to respond to a number of questions. First of all, it would be productive to monitor the accuracy levels of tasks constructed for, and received by, teachers. The present study only noted if assignments were turned in. Prior research in the area of contracting supports the notion that students' accuracy could increase with an improved study environment and better task specification.

In addition, monitoring the reliability of the teacher administering the training package, specifically in regard to the consequence of tasks contracted, is desirable.

It appears that contracted study provides structure for students to know what is expected of them. Several authors advocate individualized learning materials for optimal performance. The present study supports the contention that the Engelmann and Carnine (1982) small group instruction theory, combined with contingency contracting procedures can be effectively used by teachers in managing a large number of students.
APPENDICES
APPENDIX A

Sample Contract
Guided Study Contract Form

<table>
<thead>
<tr>
<th>Student Name</th>
<th>Period</th>
<th>Date</th>
<th>Time</th>
<th>Initials</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<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>_____ Complete</td>
<td>____ Incomp</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>_____ Complete</td>
<td>____ Incomp</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>_____ Complete</td>
<td>____ Incomp</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>_____ Complete</td>
<td>____ Incomp</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>_____ Complete</td>
<td>____ Incomp</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>_____ Complete</td>
<td>____ Incomp</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX B

Discrimination Contract presented during the first day of the training package
Guided Study Contract Form

Student Name: John Doe

Date Needed

9/30  50 min  Contract 1 - Description/Criterion

Study Biology

9/30  50 min  Contract 2 - Description/Criterion

Biology Chapter 1 finish all chapter problems

Contract 3 - Description/Criterion

Contract 4 - Description/Criterion

Contract 5 - Description/Criterion

Contract 6 - Description/Criterion

Period: 6

Initials

Results

Std: ___ Complete

Mgr: ___ Incomp

Std: ___ Complete

Mgr: ___ Incomp

Std: ___ Complete

Mgr: ___ Incomp

Std: ___ Complete

Mgr: ___ Incomp

Std: ___ Complete

Mgr: ___ Incomp

Std: ___ Complete

Mgr: ___ Incomp

STD: ___ Complete

Mgr: ___ Incomp
APPENDIX C

Discrimination Contract presented during the second day of the training package
Guided Study Contract Form

<table>
<thead>
<tr>
<th>Student Name</th>
<th>Jane Doe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period</td>
<td>6</td>
</tr>
</tbody>
</table>

**Date**  
**Time Needed**

<table>
<thead>
<tr>
<th>10/30</th>
<th>50 min</th>
<th>Contract 1 - Description/Criterion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Read Book</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10/30</th>
<th>50 min</th>
<th>Contract 2 - Description/Criterion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Read chapters 1, 2, &amp; 3 in Gulliver and outline each chapter.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Contract 3 - Description/Criterion</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Contract 4 - Description/Criterion</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Contract 5 - Description/Criterion</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Contract 6 - Description/Criterion</th>
</tr>
</thead>
</table>

| Std: | Complete |
| Mgr: | Incomp   |

| Std: | Complete |
| Mgr: | Incomp   |

| Std: | Complete |
| Mgr: | Incomp   |

| Std: | Complete |
| Mgr: | Incomp   |

| Std: | Complete |
| Mgr: | Incomp   |

| Std: | Complete |
| Mgr: | Incomp   |

| Std: | Complete |
| Mgr: | Incomp   |

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


