Effects of Homework Assignments, Parent Prompts, and Contingency Contracting on Classroom Spelling Accuracy of Trainably Mentally Impaired and Severely Multiply Impaired Students

Christine M. Blakeman

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EFFECTS OF HOMEWORK ASSIGNMENTS, PARENT PROMPTS, AND CONTINGENCY CONTRACTING ON CLASSROOM SPELLING ACCURACY OF TRAINABLY MENTALLY IMPAIRED AND SEVERELY MULTIPLY IMPAIRED STUDENTS

by

Christine M. Blakeman

A Project Report
Submitted to the
Faculty of The Graduate College
in partial fulfillment
of the
Degree of Specialist in Education

Western Michigan University
Kalamazoo, Michigan
August 1979
ACKNOWLEDGEMENTS

I would like to express my appreciation to Dr. Howard E. Farris for providing much needed encouragement, knowledge, and advice throughout the duration of this project. I would also like to thank Dr. Brian Iwata and Dr. Paul Mountjoy for their assistance and advice during the original conception and design of this project. I owe an equal debt of gratitude to Drs. Galen Alessi and Joetta Long for their assistance in the final stages of this undertaking. In addition, I wish to thank the Kalamazoo Valley Intermediate School District, along with the coordinator, teachers, component coordinators, curriculum staff members, and students of the Kalamazoo Valley Multihandicap Center. The assistance and support they provided throughout the project was invaluable. The gratitude expressed here, however, in no way divorces me from the sole responsibility for what is written here.

Christine M. Blakeman
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INTRODUCTION

Initial studies in Behavior Analysis completed in the 1950's showed that consequences such as positive reinforcement and extinction affect human behavior in predictable ways. Very often, the studies were a demonstration that a behavioral program could affect a desired behavior change. During that period, Fuller (1949) demonstrated that an institutionalized, profoundly retarded adult could be taught to raise his right arm to a vertical position when arm movements were appropriately shaped and a warm sugar-milk solution was used as a reinforcer. Greenspoon (1955) reported that a simple social consequence could influence college students to use certain types of words. Azrin and Lindsley (1956) demonstrated that jelly bean reinforcement could influence pairs of young children to cooperate in playing a simple game. In 1959, Ayllon and Michael published a report demonstrating how staff could use procedures such as reinforcement, extinction, and escape and avoidance conditioning to modify behaviors such as delusional talk, refusals to eat, and various disruptive behaviors. Further demonstrations on the usefulness of behavioral procedures occurred with increasing frequency during the early 1960's (Martin and Pear, 1978).

The early use of behavior modification procedures in the classroom occurred at the University of Washington Laboratory Preschool in the early 60's. Bijou and Baer were responsible for the preschool laboratory in which they demonstrated that adult attention could act
as a reinforcer to maintain a child's inappropriate behavior, and for publishing, in 1961, an interpretation of child development for a strictly behavioral point of view (Craighead, Kazdin, and Mahoney).

Craighead, Kazdin, and Mahoney also report that, following Bijou and Baer's demonstration, a large number of studies were published which demonstrated that adult praise and attention contingent upon appropriate behavior (while inappropriate behavior is ignored) could be a very effective program, especially with young children. School behaviors which were affected by this procedure include restricting playmate choice (Bijou and Baer, 1967), hyperactivity (Allen, Henke, Harris, Baer, and Reynolds, 1967), motor skills (Johnston, Kelley, Harris, and Wolf, 1966), climbing (Hall and Broden, 1967; Wolf and Risley, 1967), cooperative behavior (Hart, Reynolds, Baer, Brawley, and Harris, 1968), operant crying (Harris, Wolf, and Baer, 1964; Hart, Allen, Buell, Harris, and Wolf, 1965), regressed crawling (Harris, Johnston, Kelley and Wolf, 1964), excessive fantasy play (Bijou and Baer, 1967), attending school (Copeland, Brown and Hall, 1974), and finally, paying attention in class (Hawkins, McArthur, Rinaldi, Gray, and Schaftenaur, 1967).

This procedure, having been demonstrated to be successful with individual students, was first applied to entire classes of students in 1967 by Becker and his colleagues at the University of Illinois. In a series of studies, they demonstrated that teacher use of praise and ignore procedures could predictably create and reduce problem behaviors (Becker, Madsen, Arnold, and Thomas, 1967; Madsen, Becker, and Thomas, 1968; Thomas, Becker, and Armstrong, 1968).
It was also found that systematic manipulation of teacher attention will not always bring behavior under control, due to the fact that teacher attention may or may not be reinforcing for a given student. The realization of this fact resulted in various studies which investigated the use of other classroom techniques and available reinforcers. Use of the Premack principle, which allows students to perform a high probability behavior contingent on their performance of a low probability behavior, was investigated (Homme, deBaca, Devine, Steinhorst, and Rickert, 1963; Nolen, Kunzelmann, and Haring, 1967; and Wasik, 1970). Ayllon and Azrin's 1968 book, The Token Economy, had a major effect on classroom programs. The book proposed a system which involves presenting "tokens" (points, chips, stars, etc.) contingent upon appropriate behavior. The tokens are exchanged at a later time for backup reinforcers. The token system can be used to teach students to work for symbolic rewards, to delay gratification and to work on an intermittent schedule.

Another procedure under investigation was time out from positive reinforcement. This procedure involves placing a child in a reinforcement-free environment contingent upon inappropriate behavior. Return to the classroom is usually contingent upon passage of a small fixed period of time plus appropriate behavior in the last few minutes of time out. This technique was found to be most effective when paired with reinforcement for appropriate behaviors. Some studies which have demonstrated the effectiveness of time out include Whelan and Haring, 1966; Walker, Mattson, and Buckley, 1968; Sibley, Abbott, and Cooper, 1969; Wasink, Senn, Welsh, and Cooper, 1969;

In 1970, Homme et. al. published a book entitled How to Use Contingency Contracting in the Classroom, which was also to have an impact on classroom behavior management techniques. Homme found that contracting could be used with an entire classroom of students or with an individual student. It could be a low cost system and was very suited to individualized educational programs. Contracting allowed for individualization of student assignments, decision making on the part of the student(s), and the use of reinforcers particularly suited to each student. It also proved to be flexible enough to fit within the bounds of most school systems. Contracting was demonstrated to be effective in a variety of areas (drug abuse, Boudin, 1972; Polakow and Doctor, 1973; smoking, Winett, 1973; weight control, Mann, 1972; Martin and McLaughlin, 1975; Ross, 1974; and truancy, Brooks, 1974). In the educational setting, contracting research was reported by Cantrell, Cantrell, Huddleston, and Woolridge in 1969. They employed contingency contracting with a student whose parents and teachers complained that he did not complete homework or class assignments and that he did not work or listen to directions without constant reminders. They also reported success in using contracting with a school phonic child. Bristol and Sloane, in 1974, used contingency contracting with college students to significantly increase the study rate of students with a wide range of abilities. In 1969 and in 1974, both contracting studies dealt with, among other things, homework and test performance.
A high rate of academic performance for each individual student in all areas of instruction is one of the primary objectives of all public school educational programs. Much time and energy is often spent attempting to maximize the effectiveness of instructional programs and provide for high rates of learning by both regular and special education students. One issue of concern to educators is whether or not academic performance can be enhanced through the use of homework assignments. Contracting has, in the past, been examined as a consequence for homework, and homework itself has also been examined to determine its effect upon academic performance. A number of articles have supported the various advantages and disadvantages of homework (Eipps, 1966; Strang, 1968; N.E.A., 1975).

Among the studies reported, there is great variability in measures of academic performance, type of and specification of homework assignment, and presentation of information on student accuracy and completion of homework assignments. Axelrod, Whitaker, and Hall (1972) and Harris and Sherman (1974) completed studies which controlled for the variables mentioned. Axelrod, Whitaker and Hall's subjects were four emotionally disturbed or learning disabled students. These authors found that contingent social reinforcement had a limited effect on spelling accuracy, while all students showed a much greater improvement in spelling accuracy when contingent tangible reinforcement (toys and candy) was provided. Harris and Sherman studied homework using regular education students. They found that homework assignments alone had some effect. However, increasing the number of students completing the homework had little
effect on accuracy. In addition, they found that the use of consequences (free-time) for accurate completion of homework and/or accurate classroom performance plus consequences for homework not completed (loss of recess) produced high completion rates, high rates of homework accuracy and improved accuracy in classroom performance. Harris and Sherman concluded that homework plus consequences for accurate homework completion or contingencies placed on accurate in-class performance can, in fact, improve academic performance for students.

Although it has been demonstrated that homework can improve academic performance for regular education students, emotionally impaired students and learning disabled students, it has not been demonstrated that mentally impaired and/or severely multiply impaired students can learn to do homework or that doing homework can improve the academic performance of these students. There are a number of problems unique to these students that make the general practice and expectations in homework impractical, and the validity of related studies on homework in regular education questionable. Some of the primary problems include the fact that mentally impaired and severely multiply impaired students require many repetitions in order to learn an item; it is necessary to break tasks down into small steps for these students and, traditionally, these students are guided through their studies by a teacher. Mentally impaired students and severely multiply impaired students often do very little independent academic work.

Several important points need to be considered when evaluating
the possibility of teaching trainably mentally impaired and severely multiply impaired students to do homework. When homework is given to regular education students, some receive reminders from their parents to do their homework while other students do not. The reminders may be an important influence in whether students complete their homework. Homework is also often given in the form of a general assignment for the entire class, without regard for whether all students in the class have the prerequisite skills necessary for correct completion of the assignment. In the Harris and Sherman research, free time was used as a consequence but, as the authors stated, free time may not always be feasible within the school system in which homework is being assigned, and free time may not be reinforcing to all students. This is also true for the toys and candy used in the Axelrod, Whitaker and Hall study. However, another readily available, low cost system which controls for prerequisite skills and individual reinforcers, and which can be used as a consequence for homework, is a contracting system. Contracting has also been shown to be an effective consequence for regular education students but not for mentally impaired or severely multiply impaired students.

The present study investigated the use of homework to improve academic performance with trainably mentally impaired and severely multiply impaired students. The purpose was to investigate the effects of assigning homework on the classroom performance of special education students under several conditions: homework alone, homework along with a prompt at home, and contracting for homework.
and classroom performance.
METHOD

Subjects

Three students enrolled in a public school center for the multiply handicapped participated in the present study. The center is part of the Kalamazoo Valley Intermediate School District and serves multiply impaired students up to 26 years of age. The three students were selected for this study because they exhibited high level direction following skills, and they periodically worked independently on academic tasks while in the school setting. The students ranged in age from 16-18, and each had two or more of the following handicaps: mental impairment, hearing impairment, physical impairment and speech and language impairment. Two of the students communicated using American Sign Language (ASL) while the third student pointed to words or letters on a word board. One student was diagnosed as having Profound Congenital Sensory Neural Deafness, one student was diagnosed as having a neurological hearing loss (amount undetermined), and one student did not suffer from a hearing loss.

Setting

The study was conducted in the student's regular classroom. Spelling words were assigned Monday through Thursday during the last half hour of each student's school day. Spelling tests were given Tuesday through Friday during the first half hour of each student's school day. All training was conducted at classroom desks or tables, with the students seated facing the examiner.
Materials

Spelling words, five letters or less in length, were chosen from the Laidlaw Spelling Series, the Peabody Language Development Kit, The New Golden Dictionary, and Richard Scary's Best Word Book Ever. Spelling tests were administered individually and orally (in American Sign Language to the deaf students) to each student. The students using ASL were given the ASL sign for each word and required to fingerspell the word. Each word was vocalized and presented in picture form for the student using the word board. This student had the letters of the alphabet displayed across the top of his board.

Contracts were designed by the experimenter. They included lines to be completed stating what the student would do, by when, and what the student would receive in return for completing the contract. They also included space for the date and the signatures of the student and teacher (Appendix 1).

Parent Prompt cards included a note to the parent indicating that the attached paper was the student's homework assignment. They included a place for the parents to indicate whether or not they had prompted the student to study his/her homework, and one student's card also included a space in which the parent could indicate whether or not the student had initiated studying prior to the parent prompt (Appendix 2).

Overview of Design

Pilot study. Prior to the onset of the study, a pilot study was run using one multiply impaired student. All conditions for the pilot
study were identical to those described in the experimental section with the exception of the contracting condition, which was not implemented during the pilot study.

**Prerequisite skills training.** Prior to the onset of the study, the students were taught the correct responses to the words "spell", "study", and "spelling test", in order to insure that they had the necessary prerequisite skills for each phase of the study.

During the training session, the experimenter presented two words to the student, told the student to "study", and guided the student through the following study steps:

1) Point to each letter in the word and sign its name or find it on the word board.
2) Repeat step 1 five to ten times.
3) Cover the word and attempt to spell it without looking.
4) Check spelling accuracy. If incorrect, practice word another five times.
5) Cover the word again and attempt to spell it without looking. If incorrect, repeat practice until student is able to spell word correctly when it is covered.
6) Go on to next word.
7) After all words have been practiced, cover each word and spell again. Continue to practice any word on which difficulty is experienced until all words are spelled correctly when covered.

Spelling tests were held immediately following the study session. Prior to testing, it was announced that it was time for a
"spelling test". The student was then asked to "spell" each word. The experimenter presented the ASL sign or picture for the word to be spelled and recorded each word as spelled by the student. When the student indicated that s/he had finished spelling, the experimenter wrote the correct spelling for the word below the student's recorded spelling. The student was then asked if the words were the same. Stars were drawn next to words which were the same. After completion of the spelling test, stars were counted and, if the student had earned two stars, s/he was given the reinforcer of his/her choice.

The following steps were followed during the training procedure in order to teach independent study skills:

1) Prompt the student through studying two words, and test the student immediately after studying.

2) Fade the prompts during studying the two words until student studies with no prompts while sitting next to experimenter. Test student immediately after studying.

3) Slowly increase the distance between student and experimenter, while student studies two words, until experimenter no longer needs to be in same room as subject during studying. Test student immediately after studying.

4) Increase the number of words assigned for each test until assignment consists of five words. Test student immediately after studying.

5) Slowly increase the amount of time between study sessions and spelling test until student studies 24 hours prior to
At the onset of the study, the students were able to spell familiar words five letters or less in length when asked, study and correctly spell unfamiliar words for up to 24 hours after studying.

Pretest. A pretest was administered to each student prior to the onset of the study. Daily spelling words for each student were chosen from the words which the student failed to spell on the pretest. The study extended for a longer period of time than originally anticipated, thus an adequate number of pretest words were not administered. When novel pretest words were no longer available, a pretest was administered at the end of each week. Words for the following week were chosen from those words which the student failed to spell correctly on the weekly pretest.

Phase I – Baseline 1. During baseline condition, each student was assigned five spelling words daily during the last half hour of the school day. Spelling tests were given during the first half hour of the following morning. During the spelling test, students were praised for any words which they spelled correctly.

Phase II – parent prompt. During parent prompting, the students were assigned five spelling words daily during the last half hour of the school day. When at home, the students were reminded once by an adult to do their homework. Parent prompt cards were attached to each homework assignment nightly and were returned with the student each morning. During the spelling test, students were praised for any words which they spelled correctly.
Phase III - Baseline II. All conditions were identical to those in baseline I.

Phase III - contracting. During contracting, the student and teacher agreed upon the reinforcer to be earned if the student spelled 80% of the words correctly. Each contract was completed during the last half hour of the day, with both student and teacher signing the contract once it had been completed in a mutually agreeable form. Initially, students were shown or told items which they might choose as possible reinforcers. Student's own choices for reinforcements were always accepted.

Spelling tests were administered during the first half hour of the following school day. If the student spelled the words assigned with 80% accuracy, s/he immediately received the reinforcement specified in the contract. If the student's spelling accuracy fell below 80%, the student was told that the terms of the contract were not met, and no reward was given. A remediation procedure was implemented during the initial portion of the contracting phase. Students were assigned the same group of five words daily until 80% accuracy was achieved in order to insure student contact with the reinforcers. After the student had come into contact with the reinforcement two times, the remediation procedure was dropped out.

Phase IV - remediation. (One student only.) This phase was identical to the contracting phase, except the student continued to study the same group of five words until 80% accuracy was achieved.

This phase was initiated for student C, who demonstrated high
rates of spelling accuracy only during the initial remediation phase of the contracting intervention.

Experimental Design

The experimental design was a multiple baseline (Baer, Wolf and Risley, 1968) across three students with a nested ABAC design. The sequence of conditions for each of the three students was baseline, parent prompt, baseline, contracting. A remediation condition followed contracting for one student.
RESULTS

Reliability

Throughout the study, the accuracy with which students spelled words was recorded. Reliability checks were made at least once during each condition of the study. During these checks, an observer made a simultaneous and independent check of spelling accuracy. The observer and tester agreed throughout the study on the accuracy of 100% of the words spelled.

Pilot Study

Figure 1 represents the percent accuracy on assigned spelling words for student AA during each session of the three components of the pilot study.

Insert Figure 1 about here

Student AA. During baseline 1 the S had a mean percent accuracy on assigned spelling words of 20%. During parent prompt, when an adult in the S's home began reminding the student once each evening to do homework, the S's mean percent of accuracy on assigned spelling words increased to 96.4%. In a return to baseline, the mean percent decreased only slightly to 90.0%.
Figure 1. Percent accuracy on assigned spelling words in each experimental condition for subject in pilot study.
Spelling Accuracy

Figure 2 represents the percent accuracy on assigned spelling words for each student during each session of the four experimental conditions of the multiple baseline.

Experimental Procedure

Student A. During baseline, student A had a mean percent accuracy on assigned spelling words of 18.2%. During parent prompt, when an adult in the student's home began reminding the student once each evening to do homework, the student's mean percent accuracy on assigned spelling words increased initially and then slowly dropped off, resulting in a mean of 30% accuracy. A return to baseline resulted in a mean percent accuracy on assigned spelling words of 8.0%. The introduction of contracting produced an immediate increase in accuracy on assigned spelling words. During the contracting phase, student A's spelling accuracy continued to gradually increase, resulting in a mean of 62.4% accuracy.

Student B. During baseline, the student had a mean percent accuracy on assigned spelling words of 15%. During the parent prompt procedure, the student's accuracy on assigned spelling words decreased, resulting in a mean of 7.3% accuracy on assigned spelling words. A return to baseline produced a mean of 0.0% accuracy.
Figure 2. Percent accuracy on assigned spelling words for each subject in each experimental condition.
Implementation of the contracting procedure resulted in a gradual increase in spelling accuracy with a mean percent accuracy for assigned spelling words of 45.7%.

Student C. The mean percent accuracy on assigned spelling words during baseline for the student was 0.0%. The introduction of a parent prompt did not produce any change in the student's spelling accuracy of 0.0%. The student's spelling accuracy remained at 0.0% during the return to baseline. The implementation of contracting produced an immediate increase in accuracy on assigned spelling words. However, spelling accuracy quickly fell to an average of 20%. The mean percent accuracy for assigned spelling words during the procedure was 25.3%. Since the most accurate spelling for this student occurred during the initial remediation portion of the contracting phase, remediation was reinstated. Remediation resulted in a general increase in spelling accuracy. Accuracy on assigned spelling words increased to a mean of 57.1%.

Table I displays the mean percent accuracy on assigned spelling words for all students. The pilot study student showed dramatic increases in spelling accuracy when parent prompts were provided. The other students, however, failed to show substantial increases in spelling accuracy until consequences in the form of contracting, or for one student, contracting and remediation, were provided.

Insert Table 1 about here

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Table 1. Mean percent accuracy on assigned spelling words under each experimental condition for each subject.
Table 1

Mean percent accuracy on assigned spelling words under each experimental condition for each subject.

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<td>0.0</td>
<td>25.3</td>
<td>57.1</td>
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Parent Reports

Figure 3 represents the information reported by parents during the parent prompt intervention. Parents indicated to the experimenter that: 1) student was reminded to study, 2) student was not reminded to study, 3) student initiated studying prior to being reminded by parent (student B only), 4) parent did not indicate.

Student A. Parents reported that S was reminded to study 11 out of 22 possible evenings. The parents reported that they did not remind S to study on one occasion, and the parents did not report on 10 occasions. Reported parent reminders occurred across all percent accuracies on assigned spelling words.

Student B. Parents reported S was reminded to study on 1 out of 22 possible occasions. S was not reminded to study 1 out of 22 possible evenings, and it was reported that S initiated studying prior to parent prompt on 11 occasions. The parents did not report on 9 occasions. Parent reported studying occurred prior to sessions in which the S's accuracy on assigned spelling words was as high as 60% and as low as 0%.

Student C. Parent reported S was reminded to study 7 out of 9 possible evenings. No parent report was received for 2 occasions. S's accuracy on assigned spelling words remained at 0% all days during
Figure 3. Percent correct on assigned spelling words and prompt information reported by parents for each subject during parent prompt intervention.
**Key**
- • PARENT INDICATED THAT STUDENT WAS REMINDED TO STUDY
- □ PARENT INDICATED THAT STUDENT WAS NOT REMINDED TO STUDY
- ▲ PARENT INDICATED THAT STUDENT INITIATED STUDYING BEFORE BEING REMINDED
- △ NO INDICATION FROM PARENTS

**A**
PERCENT CORRECT ON ASSIGNED SPELLING WORDS

**B**

**C**

**DAYS**
parent prompt procedure.
DISCUSSION

The results of the present study are consistent with the results of Axelrod, Whitaker and Hall (1972) and Harris and Sherman (1974). Consequences provided for accurate classroom performance resulted in increased classroom accuracy.

In the present investigation assigning homework alone had a limited effect on the spelling behavior of the students, as was also true during the Axelrod, Whitaker and Hall study and during the Harris and Sherman study. Axelrod, Whitaker and Hall found that when homework alone was assigned the students completed 3.2 out of a possible 12 words correctly. In the Harris and Sherman study the experimenters measured classroom performance when homework was assigned and when it was not assigned. They found that during homework conditions 30-40% of the classroom questions were answered correctly. During no homework conditions 5-15% of the classroom questions were answered correctly. In the present study, student A spelled correctly approximately 1 out of every 5 words assigned, student B also spelled correctly approximately 1 out of every 5 words assigned, and student C did not spell any words correctly during this condition.

Although spelling accuracy increased initially for student A during parent prompt it was found that there was a downward trend in accuracy. Parent prompt had a limited effect for student B and no effect for student C. It should be noted that student B's parents
reported that the student usually initiated studying immediately after entering the home environment and before the parents were able to prompt. Parent prompts were provided on one evening during which the student did not self-initiate studying. The data indicate that the student's spelling accuracy increased by one word on that occasion. High rates of spelling accuracy were obtained on several occasions during which the student self-initiated studying. During parent prompt, parents indicated that the students were in fact studying; however, this was not reflected in overall spelling accuracy. This would tend to support the Harris and Sherman data. Harris and Sherman placed consequences on homework completion. They found that increased homework completion did not result in more accurate classroom performance. Although reliability measures were not available, the parent report indicating increased study time (even when classroom performance was still low) would provide some data to substantiate Harris and Sherman's findings. It appears that consequences should be placed on classroom accuracy and not on amount of study time or homework completed.

When homework assignments were backed up with consequences for accurate classroom performance, all students showed an improvement in spelling accuracy. This was also found to be true during the Harris and Sherman study when freetime was used as a consequence and during the Axelrod, Whitaker and Hall study when toys and candy were used as a consequence for accurate classroom performance. In the present study, it was found that there was an upward trend in spelling accuracy for students A and B. Student C showed the highest rates of spelling accuracy during the initial remediation phase of
the contracting. Contracting alone resulted in an average increase of one word correct. When contracting plus remediation was reinstated, student C's spelling accuracy again increased.

Several interpretations are possible which might explain the behavior of student C. Student C, unlike students A and B, resides in an institutional setting. He also had a limited expressive language repertoire, and it was necessary to present spelling words paired with pictures. This method for teaching new words was not frequently used with this student. Perhaps the use of pictures as opposed to real objects, the clarity of the picture, or the familiarity of the student with the item pictured may have influenced the student's performance. It was shown during the assessment of prerequisite skills that the student could, in fact, learn new words when shown the word paired with a picture and could spell that word upon request up to 24 hours later. Harris and Sherman found that consequences for accurate homework completion plus consequences for failure to complete homework were most effective. Perhaps this student also performed best under the system which provides consequences (item of the student's choice) for classroom accuracy as well as consequences (remediation) for inaccurate classroom performance.

At the onset of the present study, the students' teachers were interviewed concerning reinforcement choices which should be made available to the student during contracting. No independent reinforcement sampling was done. Any requests by the students for items not included in the reinforcement suggestions were honored. Student C, however, always chose the same item (paper and pencil) from among the choices offered and did not independently suggest other
items. It was found that paper and pencil were readily available to the student at most times during the day at school and during the evening at home. Perhaps a sample of the student's reinforcers could have provided some more novel and less readily available items which may have been more powerful in affecting classroom accuracy and/or perhaps the student needed to be taught to ask for items other than those provided as suggestions for reinforcements.

Many previous homework studies have not controlled for or presented data on measures of academic performance, type of and specification of homework assignments, student accuracy, and completion of homework assignments. This data was collected and presented during the present study.

The use of the ABAC design in combination with a multiple baseline across students showed experimental control over the dependent variables. When baseline conditions were reinstated, spelling accuracy was found to be at or below baseline levels. Each student's performance increased one at a time as they were introduced into the contracting condition, demonstrating that it was indeed the contracting condition which resulted in increased academic accuracy.

In the present study it was shown that contracting for classroom spelling accuracy when the students were given homework resulted in increased classroom accuracy for 2 Trainably Mentally Impaired and/or Severely Multiply Impaired students. Contracting for classroom accuracy plus remediation of errors resulted in increased spelling accuracy for one Severely Multiply Impaired student.

From an educational viewpoint, the procedures employed were very efficient. The contracting procedure allowed for easy indivi-
dualization of student assignments and individualization of reinforcement for accurate responding. It also clearly specified consequences to the student.

During homework conditions, the actual learning took place at home and did not require the supervision of either a parent or teacher, thus extending the academic day and increasing the amount learned by the student per day. Axelrod, Whitaker and Hall note the need in special education classrooms for learning procedures which can be conducted by one teacher without the help of a classroom aid. It was necessary for the teacher to go over the word list with each student, complete the contract, test the student and provide reinforcement. This process took an average of less than 30 minutes per day and resulted in increased academic performance on the part of the student. Present plans are to employ this method with students in other academic areas and to increase the amount of responsibility given the student in choosing the amount of work to be completed and the consequences for completing the work.

It has been demonstrated by the present study that severely multiply impaired and/or trainable mentally impaired students can benefit from homework assignments. The author would suggest that future research in this area be directed toward determining the best procedure for teaching students to do homework. Research is also needed in the area of skill retention. In this area, skill retention for items learned in the classroom could be compared with skill retention for items learned through homework. Data covering amount of skill review necessary in order to maintain skills would also be very useful.
Appendix 1. Contracts
HOMEWORK

CONTRACT

If ____________________

by ____________________

Then ____________________

_________________________  _________________________
Student                        Teacher

_________________________
Date
Appendix 2. Parent prompt cards
(Parent's Name)

Here are (Student's Name) spelling words for (Date).

Reminded (Student's Name) to do his homework.

Yes No

Thank you,

Chris

(Parent's Name)

Here are (Student's Name) spelling words for (Date).

(Student's Name) did her homework without being reminded.

Yes No

Reminded (Student's Name) to do her fingerspelling.

Yes No

Thank you,

Chris
REFERENCES


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