EFFECTS OF DIRECT INSTRUCTION REWARDS® PROGRAM STRATEGIES TO TEACH SEPARATION OF COMPLEX WORDS TO TWO HIGH SCHOOL STUDENTS WITH DISABILITIES

By

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ABSTRACT

The purpose of the study was to evaluate the effects of the Direct Instruction REWARDS® program on reading complex words of two fifteen-year-old boys in a reading resource room. Both participants had difficulty in reading and were diagnosed as learning disabled. During baseline, both participants had difficulty in syllabication. The results showed that through the REWARDS® program and by promoting generalization in phonemic reading, the program was successful and efficient. The students had stated that they felt more comfortable towards the end of the intervention with the REWARDS® program and produced large improvements in reading. The benefits of employing REWARDS® were also discussed in this paper.

Keywords: Reading, Rewards®, Syllables, High School, Learning Disabilities, Autism, Phonics, Reading Program

INTRODUCTION

Reading proficiency is a skill that is necessary for all aspects of life. Basic reading skills should be mastered at the youngest age in order to acquire higher reading strategies and proficiency. Reading is the most complex skills that school children are called upon to master" [5].In high school, if students have not reached secondary reading level, then there is most likely underlying reasons, whether that is teacher's instruction, inadequate environment, disability effects, etc. Poor readers continue to have challenges in all areas of reading such as decoding, fluency, vocabulary, and comprehension [3]. Older poor readers, such as students in middle or high school level, learn better with structure and explicit instruction in reading [13],[15]. Because this type of student has gone through school for many years at such a low reading level, an intense program is essential for improvement at the secondary level in terms of skill development and time issues [2],[12].

Direct Instruction (DI) is an intense program used to teach struggling readers and a "carefully engineered program designed to accelerate learning" "to gain the rate of achievement" [7]. All areas of learning can be improved and are to be taught using Direct Instruction procedures. Direction Instruction came into play once Engelmann, a parent, started teaching his non-identical twin to read. His success with the program started to catch attention from many people, which lead to Engelmann's joining of Project Follow-Through in 1967 [16]. This was a social program that looked at the efficiency of different methods of teaching in 20 school districts. Project Follow - Through used different program models to teach all subject-matter areas in the primary grades. The program was assessed and these results were used to document which program models produced the best outcomes for low-income students in grades kg through 3rd grade [16]. After this social program was completed, the results indicated that children enrolled in the DI classrooms had been placed first in reading, first in math, first in spelling and first in language[1]. This evidence provided to many individuals that the DI program was the most efficient in classrooms because it worked for every subject area. DI shows greatest progress compared to other instruction

programs, such as guided co-construction [14]. Direct instruction curricula and procedures have been used in teaching skills in general, remedial, and special education. In fact in some special education, training programs require courses in Direct Instruction [11].

The REWARDS® program based on a Direct Instruction strategy is used to help improve reading complex words. It is a 20-lesson program with the eight final lessons which focus on decoding strategies for reading [2];[13]. The REWARDS® program uses systematic and intentional instruction to teach students to decode multisyllabic words. Archer et al. (2003) noted, that "the goal of REWARDS® is to teach students a flexible strategy for decoding long words that is both effective and efficient." Complex, multi-syllabic words are very difficult for children to read, and this program helps to achieve those difficulties fast. The program focuses on breaking down separation strategies such as syllables and word parts and then compiles all the strategies for extra practice in reading and comprehension. With the broken down lessons, students are able to understand each step of reading a word. Using this skill, readers are able to generalize more complex reading.

Objective

- The present study was to evaluate the effects of the REWARDS® program on reading complex words of two fifteen-year-old boys in a reading resource room.
- A second objective was to extend and possibly replicate the outcomes of the REWARDS® program in a special education high school classroom.

Methodology

Participants and Setting

Participant 1 was a fifteen-year-old boy, who was a freshman in high school with a specific learning disability who had difficulty in reading, writing, and math. The participant was performing at a second grade level for reading. His level of writing was third grade, and he was at a fourth grade level in mathematics. Since, he enjoyed school and lacked the target skills, he was chosen for the study.

Participant 2 was a fifteen-year-old freshman boy in high school diagnosed with an Other Health Impairment (OHI) and Autism Spectrum Disorder (ASD). When this participant had been assessed he was at a fourth grade level in reading and writing, and at a fifth grade level in math. In class, the participant worked hard, but was extremely quiet and did not interact with other peers. This participant was chosen for this study because he needed to improve his skills in reading.

The study took place in a resource room at a public high school in a large urban school district at the Pacific Northwest. This class consisted of students with varying disabilities. The students attended general education classes for most or part of the school day. Typically there were 8 to 12 students in the class working one-on-one with a helper on direct instruction reading or the REWARDS® program. This classroom has been part of other research projects [4]; [6]; [8]. The first three authors conducted the study over a four-month period, 3 times a week for one to one and a half hour-long sessions. The authors were completing their course in as part of the academic major in special education from Gonzaga University.

Materials

For this study, the authors used the REWARDS® program entitled, REWARDS® (Reading Excellence-Word Attack and Rate Development Strategies) a Multi-Syllabic Word Reading Strategies by Archer et al., (2000). The text was employed to teach participants to read long words by splitting the words up into parts. Each participant worked in the student handbook in order to complete all lessons. The classroom teacher provided each author with a REWARDS® Intermediate Teacher's Guide and a student handbook. The participants were each given the handbook and a pencil during each session. During baseline, they were given a sheet of paper with the list of 24 words and a pencil.

Dependent Variable and Measurement

The dependent variable for the study was the number of words separated correctly using the REWARDS® strategies. A correct separation of a word was defined as when all the prefixes and all suffixes were circled and the word was separated into the correct word parts using the

'Syllable Technique' taught in REWARDS® (looping under each part). An incorrect response was defined as participants circling the wrong letters for the prefixes/suffixes, not circling all the letters in the prefixes/suffixes, and/or incorrectly separating the word. The participant did not have to read the word as to where the written separation of the word was the target response in the study. Data were gathered by administering each participant by a test at the beginning of each session. When the session was over, the authors would grade each test by comparing the participants' work of word separation to the correct word separation provided by the REWARDS® teacher's guide. For each word the participant received up to two points. One point was given for correctly separating the word parts by looping and the other point was given for correctly circling or not circling the prefix(es)/suffix(es). A total of 48 points was the maximum that each participant could receive but the participants were not able to see their scores at all during the study.

Experimental Design and Condtions

A changing criterion design [9]; [13] was used to evaluate the effects of the REWARDS® program on the accuracy of word separation. Baseline data were taken first and then the REWARDS® program was implemented. The baseline words were made up of the words found in each lesson. The authors chose one word from each lesson that used the skills taught in that specific lesson. In the intervention there were four criterion levels the participants went through to reach the terminal goal. Each criterion level was an increase of eight more words. Once the participants pass a criterion level, the participant would move on to the next level. In order to move on to each lesson the participants had to correctly complete the entire lesson. To reach the terminal goal, the participants needed to reach the criterion for amount of points.

Baseline

Before starting the intervention, each participant was given two quizzes to assess the current level the participant was at with separating long words. The quizzes were made up of twenty-four words with one word taken from each lesson in the REWARDS® program. After the participant finished the quiz, the authors would take the quiz, without giving praise or any discussion on the answers. The authors then count the score of quizzes and record the scores on the data sheet.

REWARDS® with contingent praise

For this study, the authors used the REWARDS® program with contingent praise as the intervention to teach the participant to master the separation of long words. The twenty-five lessons in the REWARDS® program were taught in order. The lessons consisted of learning vowel sounds, prefixes, suffixes, and word parts. Each lesson was broken down into 10 different parts and most lessons followed the same outline. The participant would first have to listen to a couple of words broken into parts and were asked to say the word. The next part involved learning two or three new vowel combinations. After this they would practice new and already learned vowel sounds, word parts, prefixes, and suffixes. The focus was to underline vowel sounds and also separate the words in each lesson on the worksheet and verbally. The next part would have the participant repeat the separation practice just as the previous part. Again, the child would have to listen to word parts and have to say what the word was; these would usually be more difficulty. The participants would then have to go over definitions of a couple of the words used in the lesson by reading them out loud to the author and lastly they would spell four of the words found in that lesson. After the participant finished each part of the lesson, they would receive contingent praise (e.g. "Great job!", "Nice, separating words!"). If a participant made an error at any point the authors would point to where the error was made and prompt the participants to fix it on their own. If the participant could not independently fix their mistake the authors would show the participant where in the lesson they could figure out the correct answer. There was then a discussion to make sure the participant understood why the answer was wrong. Once the participant got the right answer the participant would receive praise. After the lesson was complete, the participants would receive praise for finishing the lesson and the session would be finished.

Interobserver Reliability

Interobserver reliability was conducted during 50% of baseline and during 23% of intervention. The percentage of interobserver agreement was calculated by dividing the smaller number of correct answers recorded by one observer by the larger number of correct answers recorded by the second observer and then multiplying by one-hundred. The percent of interobserver agreement for participant 1 for correct answers was 93.54% (range 87.5% to 100%). and for participant 2 was 91.18% (range 83.3% to 100%).

Social Validity

In an attempt to prepare for the upcoming high stakes testing for certification, for every five sessions the authors would talk to the participants after the lessons were complete and would ask their opinion of the effectiveness of the program on their reading long words. The authors asked questions such as, "Do you like this program?" "Is the program helping you improve your reading?", or "Do you know the purpose of the program?"

Results

Participant 1

The results for Participant 1 separating 24 complex words using the REWARDS® Program are displayed in Figure 1. During baseline, participant 1 averaged 0 points. During first criterion, when the participant had to reach a total of 8 points after correctly separating the words, the mean of the points was 9.67 (range from 2 to 16 points) for 3 sessions. The mean for the second criterion reaching 16 points was 18 points (range from 13 to 22 points) for 4 sessions. During the third criterion, when the participant had to correctly separate the words reaching 24 points, the mean for the number correct was 25 points (range from 23 to 27 points) for 2 sessions. The mean for the fourth criterion was 34.3 points (range from 30 to 39 points) for 3 sessions. During the final criterion, the participant had to reach a total of 40. The mean for correctly separating the words was 41 (range from 39 to 42 points) for two sessions.

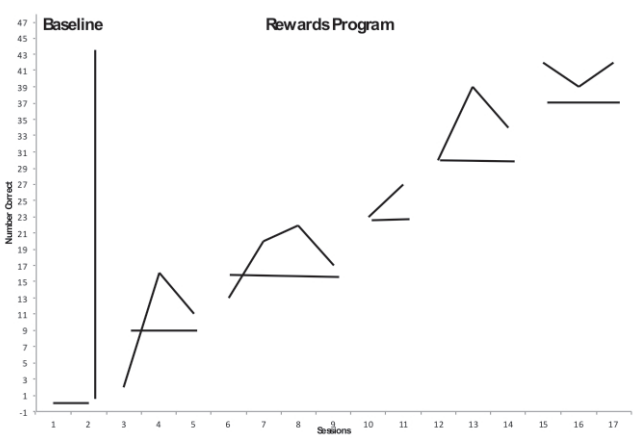

Figure 1. The number of points for Participant during baseline and the REWARDS®program.

Participant 2

The results for Participant 2 are displayed in Figure 2. During baseline, participant 2 averaged 0.0 points. During the first criterion, when the participant needed to reach a total of 8 points, the mean of the points was 4.67 (range from 0 to 14 points) for three sessions. The mean for the second criterion of reaching 16 points was 19 points. During the third criterion, the participant had to reach a total 24 points. The mean for the third criterion is 24 points (range from 20 to 28 points) for four sessions. During the final criterion, the participant had to reach a total of 32 points. The mean for correctly separating the words declined (M = 24.2 points; range from 21 to 28) for these five sessions.

Students Voice

The participants often indicated that did not enjoy the program. However, when asked about their improvement,

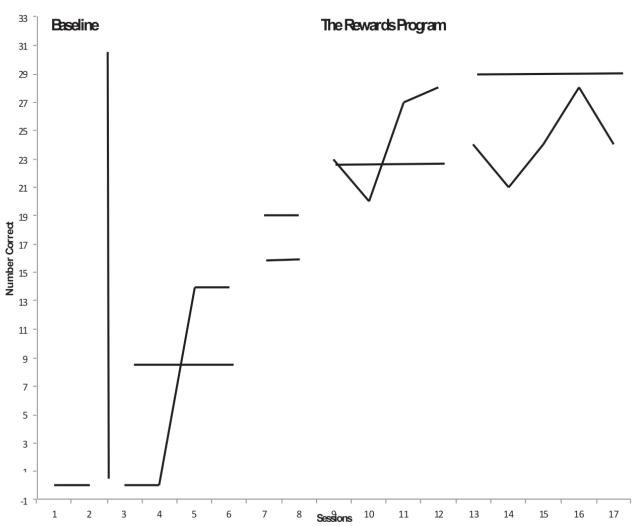

Figure 2. The number of points for syllabication for Participant 2 during Baseline and the REWARDS® Program.

they did verify that the program was clearly helping to improve their reading of long words.

Discussion

Using the Direct Instruction REWARDS® program [2] had very positive effects on the students. The participants showed a dramatic increase in the amount of words that were correctly broken up into parts from the first session to the last. While the amount of correctly broken up words increased, the time it took to complete the worksheet decreased. These results showed that the participant gained the efficiency of completing the worksheet by applying the strategies learned in the REWARDS® program.

In the REWARDS® program, the authors did not have enough time to complete the entire program due to time constraints and the ending of the semester. If the first three authors had more time, they were allowed to finish all the lessons or repeat previous lessons with participant 1, so that full mastery can be achieved. While participant 2 was supposed to reach a total of 32 points for the final criterion, but the mean of the number correct was 24.2 points. If the study could be continued, then the participant would have mastered the final criterion. The intervention was overall very successful.

Limitations

There were limitations in the present research. First, the use of praise along with the REWARDS program cannot be separated. Therefore, we do not know the efficacy of using praise. However, since the curriculum recommends the use of teacher praise, this may not be a large issue. The shortness of data collection was unfortunate. However, additional research will have to determine if completing the entire program is needed. The authors have mentioned that participant 2 did not do as well as the first participant. The use of REWARDS® with students with ASD needs further analysis. This should be addressed in future research. Finally, it would have been nice to have gathered data from the participants' general education teachers to see if any changes in student performance were observed in these classes.

The REWARDS® program was practical in implementation and function. The authors were given all of the lessons of the REWARDS® program. With practice, teaching the program was efficient and easily accessible. If a teacher or assistants were to implement this program on their own, it would require buying the expensive program costing more and spending time practicing the delivery of the lessons on an individual's own time.

During the study very little complications arose. Because of the authors' varied schedules and times of availability, Two authors went to the school on one day and the other author went on another. During the semester, the authors and the participants had two different spring breaks, resulting in a loss of instructional time. The participants' resource room teacher did not teach any of the lessons of the REWARDS® program. The teacher did not allow anyone else to work on the REWARDS® program with the participants, allowing the authors to be the only ones instructing and taking data on the participants' achievements. Because the authors were the only ones working with the participants, data was consistent. Also, by keeping up with reliability check and with excellent communication on updates of the participants' performances, the data and overall study was successful.

The participants' resource room teacher was impressed with the growth of the participants' achievements through the REWARDS® program. The results showed that through the REWARDS® program and by promoting generalization in phonemic reading, the program was successful and efficient. The students had stated that they felt more comfortable towards the end of the intervention with the REWARDS® program and produced drastic improvement in reading mastery from the start of the program to the end.

Recommendations

School personnel who either teach reading at the middle or high school level should give serious thought to employing Rewards as part of their reading or remedial reading programs. For students that are getting further behind in reading may well gain enough skills to be successful in their other classes where reading is required. These materials are readily available and may well be

very useful for ELL (English Language Learning), remedial, and special education teachers.

Conclusions

The effects of the Direct Instruction REWARDS® program was effective for the students as the amount of words correctly broken into parts per performance increased and with contingent praise and a reward system, their ability to read complex words improved. When the authors first began working with the students, complications such as a lack of motivation to complete the worksheet and lessons were evident. The authors also explained the reason for the program and told the participants that if they got all the words correct, they would not have to continue the lessons anymore. This made the participants more willing to try because they knew they had to correctly separate each word in order to advance in the materials. Our outcomes replicate other research on REWARDS® .

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