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THE EFFECTS OF DIRECT INSTRUCTION FLASHCARDS AND READING RACETRACK ON SIGHT WORDS WITH TWO ELEMENTARY STUDENTS WITH BEHAVIOR DISORDERS: A BRIEF REPORT*

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ABSTRACT

The purpose of the present research was to determine if sight word identification could be improved through the use of DI flashcards and a reading racetrack. Both children exhibited behavioral impairments and learning difficulties. The number of correct words per minute was tallied. A combination multiple baseline and ABCDCD was employed to examine the efficacy of DI flashcards, and reading racetracks on sight word acquisition. One participant required the use of edibles to increase motivation, and each participant received contingent rewards. Scores improved for both participants when a reading racetrack and DI flashcards were employed. However, one participant required the additional of a candy consequence to increase attention to task and compliance during the intervention.

Keywords: behavior disorders, sight words, reading skills, self-contained classroom, DI flashcards, reading racetracks, replication, multiple baseline design.

INTRODUCTION

Reading is a fundamental skill for all academic areas. It is the through reading that children are able to complete tasks in multiple subjects. Not only are academic areas impacted through reading, but so is career placement and psychological well being (Carnine, Silbert, Kame'enui &Tarver, 2010). Educators are challenged by research to quicken the development of reading skills in struggling readers. Such research states that "only one child in eight who is a poor reader at the end of first grade ever learns to read at "grade level" (Marchand-Martella, Prychodzin-Havis, 2010)." Therefore, those children who have trouble reading early on continue to struggle well into high school and beyond. The U.S. Department of Education states that reading has always been the center stone for success in school, yet the National Assessment of Educational Progress (NAEP) illustrates consistent low scores in reading, mainly in high-poverty schools (Marchand-Martella, Slocum, & Martella, 2004). The discrepancy between the importance of reading and the ability to read has harrowing effects on those with deficiencies in reading.

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Reading sight words has shown to be a necessity for independence, safety, and higher level reading experiences (Meadan, Stoner, & Parette, 2008). Sight word reading is defined as a discrete, observable response that is controlled by a printed stimulus. (Browder & D'Huyvetters, 1988). Reading vocabulary and comprehension improve with sight word instruction (Meadan et al, 2008).

Students with behavior disorders have difficulties in their academics and have the lowest grade point average and the highest school drop out rate (Heward, 2009; Morgan & Jenson, 1988). Of those students, most have major issues in academics with reading deficiencies being the most common (Heward, 2009). One such procedure that can be implemented to teach children to read with learning disabilities is direct instruction (DI) flashcards (Kaufman, McLaughlin, Derby, & Waco, 2011; Ruwe, McLaughlin, Derby, & Johnson, 2011). Direct Instruction flashcards are flashcards each printed with information. For example, numbers, letters, sight words, or math facts can be used with DI flashcards. The student goes through the deck of flashcards with an adult who utilizes the model, lead test procedure (Becker, McLaughlin, Weber, & Gower, 2008; Glover, McLaughlin, Derby, & Gower, 2010). If a student makes an error, the teacher employs the model lead and test procedure and that flashcard is placed two to three cards from the top of the stack (Glover et al., 2010). First the teacher says the correct answer, the student and teacher say the correct answer together, finally, the student is presented with the error card again and has to the say the correct answer (Brasch, Williams, & McLaughlin, 2008; Rinaldi, Sells, & McLaughlin, 1997). This card is again placed back a few cards and is presented again after two or three other flashcards have been presented (Kaufman et al., in press; Ruwe et al., 2011). After the student makes the correct response three times in a row, the card is then moved to the bottom of the stack (Becker et al., 2009 Glover et al., 2010; Rinaldi et al., 1997).

In addition to the direct instruction flashcards the reading racetrack procedure can be used (Hyde, McLaughlin, & Everson, 2010; Kaufman et al., 2011; McLaughlin, Weber, Derby, Hyde, Barton et al., 2009, 2011; Rinaldi & McLaughlin, 1996: Rinaldi et al., 1997). Reading racetrack is a sheet that replicates a racetrack with 28 squares. Information is printed in the squares such as numbers, letters, sight words, or math facts. This procedure was found to be successful for children with and without special needs. It employs fluency, accuracy, and practice methods that aim at mastering reading instruction (McLaughlin et al., 2009, 2011).

In this study DI flashcards and reading racetrack were used to effectively increase sight word reading in two students with severe behavior disorders. An additional purpose to was examine the efficacy of both procedures with two young students with severe behavior disorders and replicate our recent work (Hopewell, McLaughlin, & Derby, 2011), thereby contributing to the current research for both practices.

METHOD

Participants and Setting

There were two participants in this study, and both were chosen for this study by their special education classroom teacher. Both were below grade level in reading. The first participant was an eight-year-old male in second grade diagnosed with specific learning disability. He attended the general education classroom and was removed each day for behavior support. Participant 1 received special education services in reading, writing, math, speech, and behavior. He was currently reading at a DRA Level 4 and both his general education and special education teacher would like him reading at a level 12 by the end of the year. Participant 1 was assessed using the *Woodcock-Johnson III* (Woodcock, McGrew & Mather, 2008) on November 12, 2009, when he was in first grade. All his subtests were performed at a grade equivalency of middle to upper kindergarten, and his age equivalency was approximately 5-6 years old. He began receiving special education when he was in first grade. Participant 1 still had lots of difficulty listening to directions and respecting adults. He often eloped during an non-preferred task, and was unwilling to try any assignment that he labeled as challenging. He frequently stated that he was stupid or dumb. He had decreased his aggressive behaviors since kindergarten, but when agitated he would use his hands. When Participant 1 was presented with an assignment he often placed his head in his hands and cried. He would get frustrated very easily, and was extremely competitive with other students. Participant 1 was aware that he was academically behind his peers, and this had further decreased his self-confidence.

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According to the school's student discipline report, Skyward, Participant 1 had been documented eight times during the 2010-2011 school year for disciplinary action. He had one incident of hitting on the playground, two incidents of fighting on the playground, one incident of lack of compliance during class, one incident of unsafe conduct during class, and three incidents of disrespect toward an adult during class, the playground, and in the cafeteria. Last year he had a total of eleven incidents reported. Eight of the eleven cases involved unsafe conduct. Participant 1 was not afraid to be aggressive toward students, or adults. If he wanted to do something then he fought to get his way. He was a master manipulator and would try and talk his way out of everything. Participant 1 was very accustomed to getting his way at home through negotiation, and this had transferred to school. Because he does often not want to listen and instead likes to manipulate teachers, a great deal instructional time was wasted simply trying to get him to comply.

The second participant was a seven-year-old male in first grade diagnosed with developmental delays. He also attended the general education classroom for most of the day with instruction from the special education teacher who provided lessons in social skills and academics. He had goals in reading, writing, math, speech, behavior and occupational therapy. He was also currently reading at a DRA Level 4 and had the same goal as the Participant 1. Participant 2 had two incidents of unsafe conduct during October 2009 in class, and on the playground according to Skyward. He had trouble controlling his emotions, and would become upset extremely easily. Participant 2 liked things to go a certain way, and any deviation from that way would result in a tantrum. He would scrunch up his face and refuse to do work. He would sometimes throw things or knock things over in the classroom when agitated. Participant 2 had problems occurring in his home life that sometimes came out in the classroom. He would often come grumpy to class, but his moods did not last very long and could change by the minute.

This study took place in a small workroom across from the self-contained behavior classroom. Data were taken during the afternoon and only the researcher and the student were present. However at times, the college supervisor was present to gather reliability data regarding the dependent variable and fidelity of implementation of baseline and intervention.

Materials

A list of 20 sight words from the Dolch word lists was used and these can be seen in Figure 1. These flashcards had a different sight word written on one side. The researcher's cell phone was used to time the participants during their reading racetracks. A series of reading racetracks were devised. A sample would consist of fourteen words each written twice on the racetrack. Seven of these words were mastered, and seven were unmastered.

Each participant had monthly calendars, known as Smiley Charts, to track their behavior. Participant one needed continuous reinforcement and edibles were used throughout the entire session. These edibles were jelly beans that were cut in half. The second participant was allowed to choose an item from the treat bag after five smiley faces on his Smiley Chart. These items consisted of toy racecars, motorcycles, stickers, and key chains.

Dependent Variable and Measurement

The dependent variable in this study was the number of errors made during the reading racetrack. An error was defined as saying the incorrect word, saying "skip," or if the participant said nothing. These data were collected by the first author. During each ten-minute session she recorded the number of errors made by each participant. The student went through the stack of word cards. While the participant read the racetrack the following verbal prompt was used when they came to a word they did not know; "What is the first letter?" If the participant said the correct letter sound and sounded out the word correctly, then the word was labeled as correct. If the participant said the incorrect first letter and/or the incorrect word, the researcher marked a tally on the data collection sheet.

Data Collection and Inter-observer Agreement

Data were collected during each session that recorded the number of errors and corrects made by each participant. The researcher went through the flashcards, then the racetrack providing the verbal prompt

of "What is the first letter?" when the participant came to a word they did not know. The number of errors and corrects made during racetrack were the ones that were recorded on the data sheet.

Inter-observer agreement data were collected on 6 out of the 19 sessions (31%) for Participant 1 and 7 out of the 21 sessions (33%) for Participant 2. The mean agreement calculated for participant 1 was 100% and 99% for participant 2. Inter-observer agreement data were collected by the researcher and supervisor who scored data simultaneously but independent of one another. The supervisor and the researcher each recorded on a separate sheet the number of errors made during the reading racetrack.

Experimental Design and Conditions

A combination multiple baseline and ABCDCD for Participant 1 and an ABC design (Kazdin, 2010) was employed. Baseline was conducted for two days for Participant 1 and three days for Participant 2.

Pretesting and word selection

A pretest of twenty words complied from the Dolch first and second grade word lists was given to both participants. The researcher wrote down which words the participant had mastered and which words scored as errors. Seven words were chosen that the participant had mastered and seven were chosen that each participant did not know. These 14 words were used for the DI flashcards as well as the reading racetrack.

Baseline (BL)

During baseline the same rules and expectations were expected of the participants. The researcher instructed the participants that they needed to try their best and if they did not know the answer to say "skip." If the participant said "skip" the word was marked as an error. The researcher went through the stack of DI flashcards offering no assistance or feedback. Then the participants went through the reading racetrack and the researcher tallied the number of errors on the collection sheet. At the end of the session praise and physical contact were given for participation.

DI flashcards and reading racetracks (MLT)

Next, 14 sight words were chosen from the pretest and each one was written on a flashcard. Seven of the fourteen words were mastered and the other seven were not. The same sight words were each written twice on the reading racetrack to fill each of the 28 squares.

At the beginning of each session, the researcher went through the flashcards for each participant. The model, lead and test (MLT) correction procedure (Marchand-Martella, Slocum, and Martella, 2004) was used on the flashcards. Once the participant had gone through the entire pile the reading racetrack was then presented. Each participant was allowed a spot on the racetrack to begin and when the researcher said "go" the participant began reading around the track. Once the participant began reading, the researcher's stop watch was started to track the amount of time. The number of errors was recorded daily on the data sheet as well as the time needed to complete one lap around the racetrack. If the participant had a positive attitude, attempted each word, and followed directions they received a smiley face on their chart. Once the participant earned five smiley faces they were allowed to choose a toy from the treat bag.

DI flashcards and reading racetracks + edibles (MLT + Edibles)

Participant 1 had difficulty with the amount of time between work and reinforcement. He demonstrated the need for contingent reinforcement that was delivered immediately. Jelly beans were a preferred reward, and they were implemented in Session 6, March 14th 2011. They were cut in half and placed in a paper cup while a second paper cup was given to participant 1. Each time the researcher saw the participant looking at the DI flashcard, sounding out the words, reading the word correctly, or sitting with his pockets on the seat, half of a jelly bean was placed in his paper cup. At the end of the session the participant was allowed to eat his jelly beans. The use of edibles proved to be very effective and the participant was eager to work for them. The smiley chart was still used in addition to the edibles.

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RESULTS

Pre-Test

The pre-test given with 20 words taken from the Dolch word lists concluded that many of the words unmastered were the same for both participants. Therefore, the mastered and unmastered lists were the same for each participant.

Baseline

During the baseline period, both participants exhibited low levels of performance. Participant 1 had two days of baseline. On the first session he had 18 errors and 10 corrects. On the second session he had 17 errors and 11 corrects. Participant 2 had 16 errors and 12 corrects for the first session. For session two he had 14 errors and 14 corrects.

DI Flashcards and Reading Racetrack

The results of the DI flashcards and reading racetrack procedures across the two participants are shown in Figure 1. After DI flashcards and reading racetrack were implemented the participants showed an increase in the number of corrects and a decrease in the number of The range for corrects for Participant 1 after intervention was 15-28 with a mean of 25.2. The range for corrects for Participant 2 was 20-28 with a mean of 25.5.

The reimplementation of edibles with the DI flashcards and reading racetrack showed to increase not only participant 1's motivation, but his scores as well. He had a range of corrects of 25-28 and an average of 26.3 corrects.

DISCUSSION

The results of both participants shows progress using the DI flashcards and reading racetrack. With the help of edibles both participants were able to work hard throughout the entire study. These outcomes add to the previous research that shows the effectiveness of DI flashcards and reading racetracks for students with disabilities (Becker et al., 2008; Falk, Band, & McLaughlin, 2003; Green et al., 2010; Glover et al., 2010; Kaufman et al., 2011; Ruwe et al., 2011). However, in the present brief report, students with severe behavior disorders were studied.

During the study Participant 1 had a very difficult time complying with the directions. He did not want to participant in the activity and would say "I am stupid, or dumb." During one session he was so upset that he did not have very many corrects that he eloped out of the room while crying. His competitive nature placed high expectations on him. I often had to talk with him about my realistic goals for the study. It took several weeks to build a report with him, and for him to feel comfortable in front of me. After I established my authority and my set of rules, participant one was more willing to participate. After about the second week he began to want to do reading racetrack, and was motivated by his success. Once he knew that he was improving, he wanted to continue with the program.

Participant 2 was motivated with the daily behavior calendars. He was more compliant than participant 1, but still had days where he did not want to participate. He often only wanted to go through the DI flashcards and not the reading racetrack.

There were limitations to the present research. First, only two participants were employed rather than the three recommended by Horner, Carr, E., Halle, McGee, Odom, and Wolery, (2005). No data were gathered as to the fidelity of the implementation of the independent variables (See Horner et al. 2005). The data collection period was short due to the ending of the first author's student teaching. Third, when edibles were removed, there was not a decrease in corrects as see before edibles were employed. In addition, the MLT procedure appeared to be as effective as DI flashcards with and without edibles. Future research will have to address these issues.

Overall we felt the study was successful and illustrated the effects of DI flashcards and reading racetrack on sight word instruction. The mastery of sight words are vital in progressing on to higher level reading. This is an entry level task in order for both participants to reach grade level.

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