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THE EFFECTS OF DIRECT INSTRUCTION ON READING FIRST GRADE HIGH FREQUENCY SIGHT WORDS WITH A STUDENT WITH SEVERE BEHAVIOR DISORDERS

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ABSTRACT

Sight word recognition is crucial for reading success at any grade level. The purpose of this study was to determine the effectiveness of DI flashcards procedure on the correct responses to first grade high frequency sight words. The participant was an elementary student in a special education self-contained Behavior Intervention classroom. A multiple baseline design across two sets was utilized for the study. The success of the procedures led to the continuation of the intervention. The participant enjoyed the procedures and improved his sight word recognition skill over his baseline performance.

Keywords: Severe behavior disorders, sight words, behavioral research, multiple baseline design, classroom research

INTRODUCTION

Reading is an extremely important skill for success in the classroom at any age. Reading skills are crucial in order to function, both in a classroom setting and in everyday life situations (Richie & Bates, in press). Students who are able to read and read fluently are more likely to find success in other subject areas. Reading is truly the foundation for success within the classroom (National Reading Panel 2000). Sight words, or words that can be read without using sound out procedures, are necessary within every child's reading instruction. As reading is acquired, children should begin to also acquire knowledge of specific sight words. Knowledge of sight words is especially important in regards to high frequency words, or words that occur often in reading at a certain age or grade level. Students who have the ability to identify sight words are more easily able to sound out unknown words, as well as have a greater level of reading fluency.

Reading is a very important skill for students with behavior disorders. These students are more likely to drop out of school (Johnson, Sinclair, & Thurlow, 2002), commit a crime (Panko, 2005), or injure others. Academic success is extremely necessary for these students to succeed and stay in school. The participant was a nine-year-old male with a severe behavior disorder who was not able to read at the third grade level.

Direct Instruction is a system used to teach reading in a clear, concise way, and is proven to be successful for students within reading instruction (Carnine., Silbert, Kame'enui, & Tarver, 2004). Student with disabilities have displayed success in reading when engaging in the Direct Instruction system (Johnson, Luiten, Derby, McLaughlin, Weber, & Johnson, 2003). Flores and Ganz (2009) documented the positive effects of the Direct Instruction system on reading comprehension for students with autism and other developmental disabilities. The results indicated that the Direct Instruction system was successful in increasing reading comprehension for students with disabilities. Direct Instruction flashcards are successful in

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all areas for students of all abilities. Research has shown that Direct Instruction is not only successful in reading, but in math (Chandler, McLaughlin, Neyman, & Rinaldi, 2012) and spelling instruction (Cole, McLaughlin, & Johnson, 2012) as well.

Direct Instruction (DI) flashcards can be used during reading instruction to teach a child sight words. Each flashcard has one target word printed on the front. The student is presented each flashcard with the prompt, "What word?" The student then has the opportunity to identify the word. If the student identifies the word correctly, the flashcard is placed in the back of the deck. If the student makes an error by incorrectly identifying the word, the teacher uses the correction procedure of model-test with the student, saying, "This word is _____. What word?" The student is given the opportunity to accurately identify the word. Once the word has been correctly identified, the flashcard is placed one or two flashcards back, so it will appear again quickly for the student, and so the student has an opportunity to identify the word soon after the correction procedure has taken place. A set of flashcards should begin with about three or four words that the student already knows, and two or three words that the student does not know.

Several single case research studies have been carried out to evaluate the effectiveness of DI flashcards (Alexander, McLaughlin, Derby, & Cartmell, 2008; Lund, McLaughlin, Derby, & Everson, 2011; Skarr, Zielinski, Ruwe, Sharp, Williams, & McLaughlin, in press). The research has noted that DI flashcards can be employed in a wide range of classroom configurations ranging from a resource rooms (Lund et al., 2011; Skarr et al., in press) to self-contained classrooms (Alexander et al., 2008; Crowley, McLaughlin, & Kahn, 2013; Pierce, McLaughlin, Neyman, & King, 2012), and across a wide range of disability designations. The most common use of DI flashcards has been in resource room classrooms with students with learning disabilities (Erbey, McLaughlin, Derby, & Everson, 2011; Kaufman, McLaughlin, Derby, & Waco, 2010) and preschool settings (Crowley et al., 2013; Ehlers, McLaughlin, Derby, & Rinaldi, 2012; Fitting, McLaughlin, Derby, & Riley, 2013; Herberg, McLaughlin, Derby, & Gilbert, 2012; Higgins, McLaughlin, Derby, & Long, 2012; Mangundayo, McLaughlin, Neyman, & Toone, in press).

Only three studies (Brasch, Williams, & McLaughlin, 2007; Pierce et al., 2012 Treacy, McLaughlin, Derby, & Schlettert, 2012) employing DI flashcards have taken place in self-contained settings for children with severe behavior disorders. Pierce and colleagues were able to improve the math performance of their two participants when rewards were awarded on an increasing schedule of performance (DRH) in conjunction with DI flashcards. Brasch et al. were able to improve the acquisition of math facts by two students enrolled in a special school for students with very severe behavioral issues. They also found that the ratio of know to unknown facts per set was unimportant to their outcomes. Their participants did just as well with a set with a large number of unknown facts as ones where they were almost equal. These findings have been replicated by Skarr et al., (2012). Treacy et al., had to add additional practice and special consequences to improve the performance of their student with a severe behavioral issues. Therefore, the use of DI flashcard needs further analysis with such a population at the elementary school level.

The purpose of this study was to increase the accuracy in identification of high frequency sight words at the first grade level, using the DI flashcard system. The participant was a nine-year-old male with behavior problems. A second purpose was to replicate the previous research with an additional student with severe behavior disorders.

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METHOD

Participant and Setting

The participant of the study was a male third grade student with behavior issues. The participant attended a self-contained Behavior Intervention (BI) classroom located in an elementary school in a large urban school district in the Pacific Northwest. The participant was a 9-year-old boy. He had individualized education plan (IEP) goals in the following areas: reading, writing, math, communication, and behavior. The participant had only been attending the school where the student took place for a week when the study began. He was referred to BI due to his violent and aggressive behavior, as well as his inability to attend to tasks, follow directions, or listen to adults. He was on Risperdal, an antipsychotic prescription medication, at the time the study took place.

A formal assessment was completed on the participant using *Woodcock Johnson III Tests of Achievement* (Woodcock, McGrew, & Mather, 2001) at the beginning of data collection. Test results showed that he scored at 1.3 grade level in broad reading, first 1.8 in broad math, and a 1.5 grade in academic skills. These results suggested that the participant was at least two academic grade levels below his chronological age group.

The setting of the study was a special education, self-contained classroom. The classroom served students from kindergarten to sixth grade. While the classroom was self-contained, students who had mainstreamed into general education classrooms still received services and supports from the BI classroom, and many students within the classroom attended specialist classes, such as PE, music, art, and library, with a general education class. The classroom had two fully certificated teachers, as well as three Instructional Assistants and an interpreter for a deaf student. The classroom contained two isolation rooms for students to use when their behavior had become a safety concern to themselves or others. This classroom has served as the setting in previous research with students with behavior disorders (Darrow, McLaughlin, Derby, & Johnson, 2011; Makowski, McLaughlin, Johnson, & Beiers, 2013)

MATERIALS

The materials needed for this study were two sets of flashcards and data collection sheets. Each set of flashcards consisted of fourteen cards, each with a first grade high frequency sight word printed on them by the first author. The data collection sheet was used to record if the participant responded correctly or incorrectly to each flashcard.

Dependent Variable and Measurement

The first dependent variable for this study was the number of first grade high frequency sight words identified correctly. A correct response was defined as the participant saying the word correctly without any self-correction, following the instructional cue made by the first author. The second dependent variable was the number of errors. An error was defined as any vocalization other than the sight word itself. This could consist of an incorrect word, using a self-correction, or saying, “I don’t know”.

Following each session with the participant, the first author would present all 14 flashcards within a set and the instructional cue to respond. After each response from the participant, the first author recorded if the response was correct with a “+” or incorrect with a “-“.

Experimental Design and Conditions

The study used a multiple-baseline design (Kazdin, 2011) across two sets of first grade high frequency sight words. For Set 1, baseline was conducted five times, and in Set 2, baseline

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was conducted three times. After each baseline period, intervention sessions occurred for each set. Each set had four intervention sessions.

The procedure used was the same for all phases of the study. Intervention took place twice a day, once in the morning and once in the afternoon. The first author worked one-on-one with the participant for each session. Flashcards, Direct Instruction teaching methods, and correction procedures were implemented during each session. The first author used a model-lead-test-retest format. Intervention began with Set 1. The next set was not introduced until the participant had reached 90% mastery of Set 1. After each lesson, the first author used data collection procedures to collect data on progress.

Baseline

Baseline consisted of the presentation of flashcards to the participant. The first author would sit down across a table from the participant. The first author would say, "Get ready to read all of these words, do your best!" The first author presented the flashcards and used the instructional cue, "What word?" If the participant said the correct word, a "+" was recorded on the data collection sheet. If he emitted an incorrect response, a "-"was recorded next to the word. The first author did not provide any directions, prompting, or praise during baseline.

Direct Instruction flashcards and correction procedures

Intervention began with the first author using five of the fourteen flashcards. Three of the flashcards were words that the participant had previously mastered, and two of the flashcards were new words. Instruction lasted approximately ten minutes for each session. The first author would go through the words. If the participant responded correctly, the first author said, "Yes, that word is ___", put the card in the back of the deck, and continue on to the next word. If the participant responded incorrectly, the first author would use a model-lead-test-retest procedure, saying, "Touch the word. That word is ___. What word?" The participant then responded correctly, and the card was placed two cards back in the deck, so that the participant would see the word again quickly.

After each session, all 14 flashcards were presented to the participant to track mastery of the words. For each session, two new unmastered words were added to the deck. By the final session, all fourteen flashcards were in the deck.

Interobserver Agreement and Fidelity of the Independent Variables

Interobserver agreement data were collected by having an additional observer present during formal data collection. The observer independently determined the number of correct and incorrect responses in the same manner as the first author. The number of correct and incorrect responses was compared by the observers, and agreements and disagreements were determined. Point-by-point agreement was used to calculate interobserver agreement. Interobserver agreement was taken once during baseline, with an interobserver agreement of 100%. Interobserver agreement was also taken for 50% of the sessions conducted, with an interobserver agreement of 98.25% (range: 93-100%).

Reliability as to the implementation of DI flashcards, the second author came to the classroom three separate times, and watched the first author carry out baseline as well as the DI flashcard intervention. Using a checklist, both interventions were being implemented correctly. In addition the third author reviewed the videotapes showing both baseline and the DI flashcard procedures. Again, both phases were being implemented properly.

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RESULTS

Words Correct

During baseline measures, the participant illustrated a lack of mastery for both sets of first grade high frequency sight words (See Figure 1). For Set 1, the participant answered an average of 6.8 words correctly in baseline, with a range from 4-8 words. For Set 2, the participant answered an average of 3.3 words correctly, with a range from 3-4 words. The participant demonstrated mastery of three words in each set. Those words were used as the mastered words for the first sessions of intervention for each set.

Percent Correct

The results of the Direct Instruction flashcard system are displayed in Figure 1. During baseline, the participant did not show mastery of either set of first grade high frequency sight words to an accuracy level of 90%. When the DI flashcard intervention was implemented, the participant showed growth in performance toward this mastery level. Following the implementation of the intervention and by the end of the study, he was able to accurately identify an average of 9.25 words for Set 1, with a range from 5-13, and an average of 8.25 words for Set 2, with a range from 4-12 words. Figure 1 shows an upward trend within each set of words; after each session, the participant showed a mastery of more words than he had in the session before.

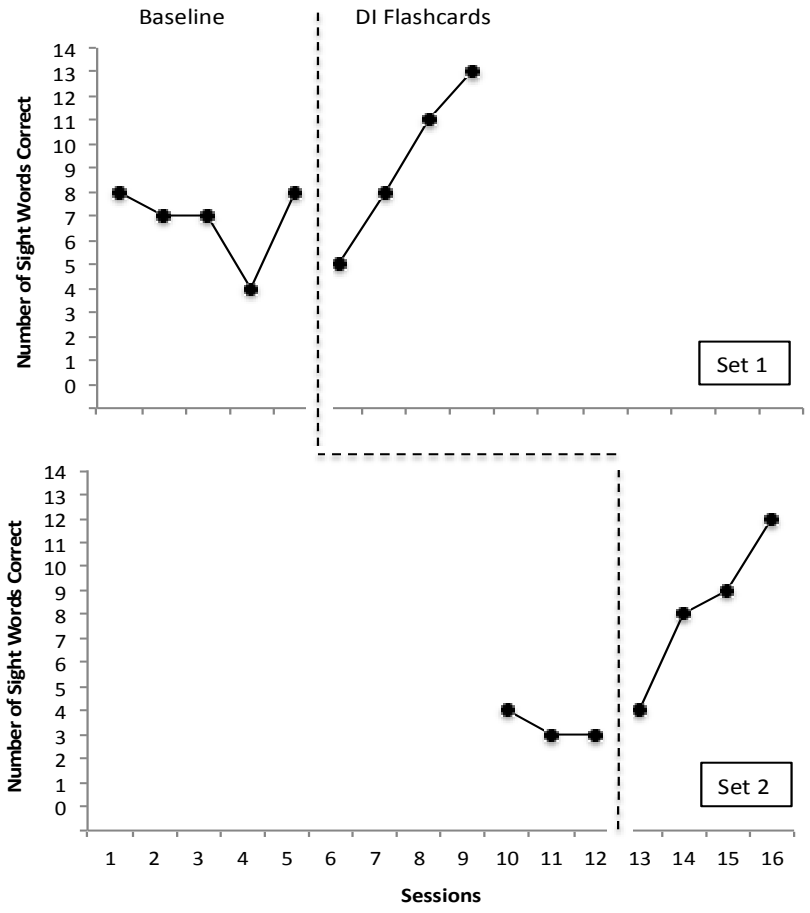

Figure 1. The number of correct sight words during baseline and DI flashcards for Sets 1 and 2.

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DISCUSSION

The results indicated that the DI flashcard system was useful in aiding in the success of identifying first grade high frequency sight words. The results also showed that the participant a great deal progress toward mastery using the Direct Instruction flashcard system. With each session, he mastered more first grade high frequency sight words than the session before. These results support previous research (Brasch et al., 2008; Glover et al., 2010; Kaufman et al., 2010). Once our participant was familiar with the DI flashcard strategy, he more readily used the strategy quickly and efficiently with the first author. This allowed him to progress at a faster rate than in the earlier sessions.

The participant was reluctant to work with the first author when the study began. He voiced that he did not like to read, and would not read for the first author. When he did not know a word during baseline measures, he would ask for the first author's help. Because the first author could not help him in baseline measures, he would escalate quickly, screaming and pounding his fists on the reading table. However, the participant was attention maintained. Once instruction began and he received verbal praise for responding, he was much more excited to engage in instruction and use the Direct Instruction strategy. The participant was also very aware of the progress he was making, stating that he liked to read more when he knew more of the words printed on the flashcards. This finding adds some social validity (Wolf, 1978) to our findings

The DI flashcard intervention was successful for the participant for many reasons. First of all, the participant was very centered on routines, and would become frustrated and escalated if his routines were changed. The first author conducted sessions at the same time every day to maintain routine. Along with this, the DI flashcard system offers concrete, consistent instruction, which helped the participant develop a routine and become familiar with the system being used. Predictability was key for the participant, and the Direct Instruction procedure provided the structured predictability under which he functioned best. The DI flashcard system also allows for frequent exposure to the targeted skill (Marchand-Martella, Slocum, & Martella, 2004). The nature of DI flashcard correction procedures allowed the participant a chance to correctly respond soon after his incorrect response, giving him frequent exposure to the words and more opportunities to respond correctly (Hopewell, McLaughlin & Weber, 2010). Finally, Direct Instruction flashcards been shown to be successful when used with students with behavioral issues (Brasch et al., 2008; Pierce et al., 2012; Treacy et al., 2012). The intervention was easy to use and did not cost a lot of money. The first author used blank paper and a black marker to make the flashcards, which were the only material she used aside from data collection sheets. The intervention was easily implemented, and could be used within the participant's classroom. Finally, intervention sessions were only 10-15 minutes per session, so the participant did not miss out on various instructional periods within his classroom.

This study had limitations. One of these limitations is small number of sets within the intervention. The first author only taught the participant two sets of words. The effectiveness of the study would have been better illustrated had there been more sets of words. Another limitation is the need for a teacher to assist the participant in using the flashcards. While the participant knew the system and could use it, he needed another individual who had mastery of the words to effectively engage in the error correction procedure when it was necessary. Therefore, the participant would not be able to use the system completely independently. A longer analysis, employing a multiple baseline across more sets would have been more powerful. Also, the use of a multiple baseline design can be used to rule out maintenance during baseline (Kazdin, 2011). Finally, the study only employed one participant. A study

with numerous participants would have shown the effectiveness of DI flashcards for more than one individual, making the results stronger and more socially valid.

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