

EMPLOYING A READING RACETRACK FLUENCY DRILL AND REPEATED READING TO INCREASE ACCURACY AND FLUENCY FOR A FOURTH GRADE BOY WITH LEARNING DISABILITIES

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Abstract: *The purpose of the present case report was to evaluate the effectiveness of repeated reading and implementing a reading racetrack with an elementary school student with learning disabilities. Two measures were taken. The first was the number of correct and error words taken from the reading racetrack as a measure of fluency. The second measure was the number of correct words read in context from selected three reading passages. These two interventions were evaluated in different designs. The efficacy of reading racetracks was employed an ABCD. The percent correct in passage reading was examined in a multiple baseline design. The overall outcomes indicated improvements in all measures. The pairing of repeated reading with a reading racetrack procedure was discussed.*

Key Words: *reading racetracks, repeated reading, fluency, correct rate, error rate*

Introduction

The importance of reading in our schools continues to be viewed as vital to improve the academic, social, and economic outcomes of schooling. Several mandates at the Federal level such as No Child Left Behind (NCLB, 2003, Reading First (National Reading Panel, 2005) Individuals with Disabilities Improvement Act (IDEIA, 2004) have attempted to require the use of evidenced based practices in the schools. Also, various authors (Carnine, 1997; Fuchs & Fuchs, 1996; Gersten, Vaughn, Deshler, & Schiller, 1997; Gottfredson & Gottfredson, 2001; Greenwood & Abbott, 2001; Vaughn, Moody, & Schumm, 1998) have noted the large and substantial gap between what is known about effective educational practices and what is actually implemented in our nation's schools. These issues have been used to put evidence-based education at the head of our educational goals (Slavin, 20022008).

Fluency is an integral part of reading and comprehension (Archer, Gleason, & Vachon, 2003; Binder, 1994; Johnson & Layng, 1994; National Reading Panel, 2005). Fluent readers have more attention and energy to focus on what is being read, not how to read the text. LaBerge and Samuels (1974) have also suggested that fluency frees up cognitive resources that can be devoted to the comprehension of text.

Students with disabilities in intermediate grades often experience frustration and a dislike for reading because it is a laborious task that often does not give them the information they need

(Swanson, Harris, & Graham, 2013). By the end of third grade, these students are often expected to transition from decoding to reading for meaning. If this does not take place, fluency and sight word recognition interventions need to be employed so the student can skip the decoding barrier that is holding him or her back from the various purposes of reading (Therrien, 2004). Unfortunately for many students, fluency continues not to be a focus in the many classrooms. Skills in reading have been linked to a wide range of outcomes. These have included later adult success (Livingston, 1978), remaining in school (Chambers, Dunn, & Rabren, 2004).

Review of Literature

Repeated reading is a fluency-based approach to reading that has been reviewed in several journals and documents. The National Reading Panel (2005) indicted that repeated guided reading and independent silent reading both increased students comprehension and fluency at multiple grade levels and ability levels. Unfortunately, other reviews of repeated reading have produced conflicting outcomes. Repeated reading consists of selecting passages at the student's reading level. These passages can vary from 100 to 300 words (Therrien & Kubina, 2006). The student reads the passage silently three or four times. Next, the student reads this passage orally for one minute and the teacher or fellow student marks the student's errors on a copy of the passage or a transparency can be used for such scoring. If the student pauses on a word for longer than three seconds, the teacher or fellow student provides the correct pronunciation of the word, the student re-reads the word correctly and moves on to the next word in the passage. At the end of the timing the student practices his errors and the teacher plots or records the number of correct and error words read. Students can have as many as four additional readings of the passage. If students are reading in pairs, the recording student then is allowed to follow this same process with his or her passage. Therefore, the roles are reversed. The best performance of the student should be recorded or plotted (Herberg, McLaughlin, Derby, & Weber, 2012). A recent meta-analysis that examined repeated reading as an intervention, Therrien (2004) found improvement across a wide range of student populations and age groups.

Reading racetracks (Rinaldi & McLaughlin, 1996) are an additional instructional and review strategy that focuses on improving fluency. A reading racetrack contains 28 boxes or cells presented in an oval racetrack format (McLaughlin et al., 2009, 2011). These cells may contain sight words (Rinaldi & McLaughlin, 1996; Rinaldi, Sells, & McLaughlin, 1997), high use words, district word lists, or sight words that a student is having difficulty (Falk, Band, & McLaughlin, 2000; Green, McLaughlin, Derby, & Lee, 2008; McGrath, McLaughlin, Derby, & Bucknell, 2012; Rinaldi et al., 1997). Each track typically contains a picture of a car (we typically use line drawings of Ford Mustangs) where the teacher or instructional assistant places which word list, word set, or passage that the student is currently working.

A student may also employ flashcards as a practice procedure with reading racetracks. However, the racetrack itself can be used. After student practice, the student is timed on these words using the track itself at the end of the session. The students often plot their performance on either standard celeration charts (Caletti et al., 2008; Green et al., 2008; Lindsley, 1994) or with traditional graph paper (Anthony, Rinaldi, Hern, & McLaughlin, 1997; Falk et al., 2003; Printz, Band, & McLaughlin, 2006; Rinaldi et al., 1997). Studies employing reading racetracks to teach

sight words have been shown to be effective with students who have various ability levels (Green et al., 2008; McLaughlin et al., 2011; Rinaldi et al., 1997). Reading racetracks have been shown effective when being paired with flashcards to improve sight word recognition (Anthony, Hern, Rinaldi, & McLaughlin, 1997; Bishop, McLaughlin, & Derby, 2011; Falk et al., 2002; Printz et al., 2004).

Based on these findings and similar findings of other studies, a reading racetrack was paired with a sight word fluency drill. These procedures were selected for an intervention to increase sight word recognition, rate and fluency for a fourth-grade boy with learning disabilities (Chafouleas, Martens, Dobson, Weinstein, & Gardner, 2004; Samuels, 1979). Before the intervention, our participant was reading below grade level and struggling with the comprehension component in his class work. A final purpose was to replicate and provide an additional demonstration of employing a reading racetrack procedure with repeated or guided reading.

Methodology

Participant and Settings

Our participant was a 10-year-old 4th grader enrolled a low-income elementary school in the Pacific Northwest. He was also currently enrolled in a general education classroom with one hour of special education services a day in a resource room. Our participant also received services for mathematics and written communication. His reading services also included accommodations through working with an instructional assistant for approximately 30 to 45 minutes a day with another special education peer. He has received special education services since the first grade.

Our participant had excellent verbal skills, worked well with others. He was seen by the school staff as a good natured and well-behaved child. He could verbally convey ideas and can hold a conversation with peers as well as adults. He had built many relationships within the school with both peers, classroom aides and teachers. He showed concern for his peers and was aware of other people around him. However, he needed help in developing skills in math, reading, writing, spelling and paying attention.

Data collection and instruction took place in two locations. The first and most frequented location was a quiet volunteer classroom. The classroom had small tables with two chairs on each side. The participant and first author typically sat across from each other for each session. On occasion the participant was disrupted by children in the hallway going to recess or by his own class leaving early for recess. The second setting was in the resource room in between class sessions. In this setting the participant and instructor sat across from each other at a small table.

Materials

Three 100-word passages at the students' instructional level, three lists with 10 high frequency words at grade level, a reading racetrack, a timer and data collection sheets. Photocopies of the passage or a clear overhead sheet were used to mark the student's reading errors. Data

collections sheets consisted of a graph for the student to self monitor his progress, and a data table for the instructor to mark errors, corrects and time for each reading.

Dependent Variables

The dependent variable in this intervention was the oral with the three passages at the students independent reading level. Data were collected by having the participant read aloud from a copy of the passage. The first author followed along on another copy, completing a miscue analysis on each passage reading. Corrects, errors, and number of words per minute were placed on a data sheet. Corrects and errors were also plotted on a line graph for the participant. A correct word read had to orally match the pronunciation of the word from the teacher's edition of the reading text. If the participant self-corrected an error word before reading the next word, it was also scored as a correct. A mispronunciation, skipping the word, or pausing for more than 5 seconds were scored as an error. The student was asked to read all three passages after two trials of the reading racetrack intervention. The student was then timed for the first one 100 words of the passage. His fluency was based on the number of correct words read per minute from a 100 word list. This list included both correct and error words. These data were also collected by having the student read from a copy of the passage while the instructor followed along on another copy, completing a miscue analysis on each passage reading.

Experimental Design and Conditions

A combination ABCD single case design with a 100 word list. In addition, a multiple baseline design (Kazdin, 2011) across passages was employed. A description of condition follows.

Baseline. Baseline was in effect for 3 to 9 sessions across passages. During baseline the student read the passage and his corrects and errors were plotted by the first author.

Reading racetracks + repeated reading (RR). Three 100-word passages were selected from a book at his current instructional Rigby reading level. After baseline was completed for three days on all three passages, intervention on the first passage took place. During each session, our participant completed a fluency drill on frequently used sight words and missed words from the passage using a reading racetrack. After the first timed trial of the racetrack, our student then completed an error drill on all the words that were missed during the first trial. The error drill consisted of reading, orally spelling and re-reading the word a minimum of three times. After the error drill, a second racetrack trial was given. After the race rack trials were completed, a final time trial on the master word list containing all three word lists included in the intervention too place. These data were plotted.

The second part of the intervention included passage fluency. Our participant would read the current passage and then receive error corrections. At the end of the session, the participant was required read each of the passages without error corrections and he was timed for fluency. Each passage and word list was practiced until 90% accuracy and 80-90 words per minute were reached. After goals were met for each word list and passage, conditions changed and the same procedure was used for each of the other passages and word lists.

Reliability of Measurement

Reliability of measurement was carried out during both conditions for a total of seven times. The oral reading of our participant was audio-taped and an additional adult (master teacher or classroom aide) scored both the word lists and the percent correct of words read. The number of agreements were divided by the number of disagreements and multiplied by 100. If both observers scored the word the same an agreement was noted. Any disagreement in scoring was defined as a disagreement. Reliability of measurement was 98% for correct words read per minute in passage reading and 100% for reading from master word list.

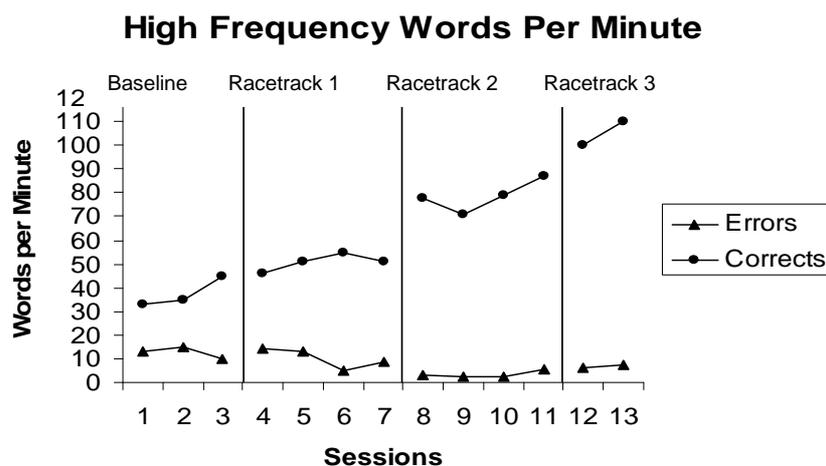
Findings

Number of Sight Words-Corrects and Errors

Improvement in fluent and accurate reading performance with the use of reading racetrack and fluency drills (See Figure 1). During the three baseline sessions, the median number of correctly read words on a master word list was 38 with a range 33 to 45 words. When compared with the 13 sessions during the reading racetrack fluency drills, an increase for the median number of correctly read words from the master word list increased to a median of 51 (range 33 to 110 words).

For baseline, the median number error words read orally was 12 (range 9 to 15 errors). When repeated reading and the reading racetrack procedure were in effect, the median number of errors decreased to 5.0 (range 14 to 20 errors). An accelerating data path from the number of correctly read words and a decelerating trend for errors on the high frequency master word list.

Figure 1. The number of words read correctly (closed circles) and in error (closed triangles) for the participant in baseline and during reading racetracks with repeated reading.



Passage Reading

As seen in Figure 2 for baseline, the median percent for correct for words read in Passage 1 was 79% with a range of 78% to 80%. When repeated reading and the reading racetrack was employed, the accuracy of our participant increased to 94%, range 71% to 99%.

The median percent correct for Passage 2 was 75%, range 46 to 81.5. When reading racetracks and repeated reading was employed, the percent correct increased to 90 (range 81 to 98% correct). For Passage 3 in baseline, the median percent correct was 83% (range 50% to 90%). For the two sessions with repeated reading and reading racetracks, our participant performance increased to a median of 97% (range 97% to 98%).

Figure 2. Words read correctly during passage reading.

Conclusion

Improvements in both accuracy and fluency were found when repeated reading was employed along with a reading racetrack. Increases were made in all three oral passage readings, even before the intervention conditions occurred for the second and third passage. Since we employed two different interventions, we are unable to determine if the reading racetrack or the repeated reading intervention were the critical intervention. Regardless of the contributing intervention, i.e. repeated readings or fluency drills using reading racetracks, the end result was an obvious increase in the students' fluency and accuracy in isolated word reading and passage reading. Since both procedures were easy to implement, there was little need to carry out a component analysis of the procedures employed in the present case report (Kazdin, 2011; Skarr, McLaughlin, Derby, Meade, & Williams, 2012).

Suggestions and Recommendations

The present outcomes add to the growing literature that reading racetracks can be successfully combined with other procedures. We have added DI flashcards to reading racetracks (Bishop et al., 2011; Crowley, McLaughlin, & Kahn, 2013; Herberg et al., 2012) with both elementary as well as middle school students. In the present case report we paired DI flashcards with repeated reading.

There were many positive aspects associated with this intervention. First and, it is a simple and flexible procedure that can be modified for any setting, abilities level and instructional area. It requires minimal time per session and when done systematically, the intervention typically yielded high increases in performance. Fluency drills can be given in during one on one instruction, small group and even whole group instruction. This treatment package could be implemented and evaluated by teachers, paraprofessionals, and peer tutors (Therrien, 2004; Therrien & Kubina, 2006).

There were also limitations associated with this case report. The scheduling conflicts within the school building made it difficult to have consistent times and days for instruction. For repeated reading and fluency drills to be even more effective with minimal sessions, the intervention times need to be consistent and three or four times per week. Unfortunately, due to scheduling conflicts, sessions were erratic and spread out over two weeks per intervention phase. This intervention could be more effective and beneficial if it was preformed in a small group setting at a set time three times per week. The small group setting would allow for students to learn to

become peer tutors and self monitor behavior while also eliminating the issue of missing extra class or group time for an individual to miss instruction.

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Figure 2. Words read correctly during passage reading.

