The Impact of a Structured Reading Curriculum and Repeated Reading on the Performance of Junior High Students With Emotional and Behavioral Disorders

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Abstract. Students with emotional and behavioral disorders (E/BD) frequently exhibit academic deficits alongside their behavioral deficits, particularly in the area of reading; however, there are very few studies examining ways to address the reading problems of this population of students at the middle and high school level. This study examined the effect of a repeated reading intervention in conjunction with an empirically valid reading program on the reading fluency of junior high students identified with E/BD. First, the teacher implemented the Corrective Reading curriculum on a classwide basis. Next, a multiple baseline design across student groups was used to evaluate the impact of a repeated reading intervention on various fluency measures. Data showed increased reading fluency following the implementation of the repeated reading intervention. Limitations and future directions are discussed.

The academic deficits exhibited by students with emotional and behavioral disorders (E/BD) are well documented in research literature (Coutinho, 1986; Epstein, Kinder, & Bursuck, 1989; Foley & Epstein, 1992; Ruhl & Berlinghoff, 1992). As outlined in the federal definition of emotional disturbance, students with this disorder demonstrate an inability to learn and, as a result, pose instructional challenges alongside the behavioral problems that they exhibit in the school environment. Many of these students require intensive instruction to maintain the academic skills they have been taught and to improve their academic deficits (Epstein et al., 1989). For many students with E/BD, achievement problems are particularly troublesome in the area of reading (Maughan, Pickles, Hagell, Rutter, & Yule, 1996; McMichael, 1979; Richmond & Blagg, 1985; Stanton, Feehan, McGee, & Silva, 1990). Unfortunately, there has been very little published research in the area of reading instruction with this population of students. In their review of reading interventions in the area of E/BD, Coleman and Vaughn (2000) identified only eight published studies that reported the results of reading interventions for students with E/BD. The majority of these studies were conducted with students younger than 12 years of age.

The need for additional research in the area of reading instruction is particularly true for adolescents with E/BD. The reading failure of secondary students with behavioral problems has been consistently documented (Coutinho, 1986) and, as reported in the findings from the National Longitudinal Transition Study (Malmgren, Edgar, & Neel, 1998; Wagner, D’Amico, Marder, Newman, & Blackorby,
these reading deficits likely contribute to the dismal outcomes for these students such as high dropout rates, grade retention, and overall poor achievement. In addition, the absence of empirically derived reading practices for older students with E/BD is particularly problematic given the current emphasis on achieving state curriculum standards and participating in content-area learning (Deshler et al., 2001).

As noted earlier, students identified with E/BD typically show significant deficits in the area of reading. This is particularly true for secondary-age students with this condition. In a recently completed study (Wehby, Lunsford, & Phy, 2004), 21 high school students with E/BD were compared to a sample of typically developing students, matching on the grade-level reading ability of the high school students. Given the reading deficits of the high school students, the matched sample consisted of students in second through sixth grade. Results showed that the secondary group of students with E/BD performed significantly lower on word attack skills, reading fluency and accuracy, and overall reading rate. In a related study, Lane, Wehby, Little, and Cooley (2004) reported that students with E/BD educated in a self-contained school scored significantly lower on a variety of academic measures, including reading, when compared to a similar sample of students with E/BD who were placed in self-contained classrooms located on general education campuses. From these data, it appears that older students with E/BD and those placed in restrictive settings have a history of academic failure associated with their existing instructional programs. As a result, studies are needed that document the responsiveness of this population to intensive, instructional procedures using empirically validated techniques.

Although researchers are aware of the reading failure that secondary students with E/BD frequently experience, the empirical research on how to intervene effectively to improve the reading deficits exhibited by these students is sparse. The studies that do exist have utilized interventions that range from single component programs that focus on a particular skill level (Schloss et al., 1995; Skinner & Shapiro, 1989) to more comprehensive reading curricula (Malmgren & Leone, 2000; Simpson, Swanson, & Kunkel, 1992). Even though some positive results have been reported, a number of methodological limitations inhibit the ability to make generalized statements about reading instruction for secondary students with E/BD. Thus, although suggestions for improving the reading performance of younger elementary-aged students with E/BD have been developed (Coleman & Vaughn, 2000; Levy & Chard, 2001), a specific set of guidelines does not exist for these students in junior high or high school settings.

Although there is limited work in the area of reading instruction for older students with E/BD, there is some evidence that students with high incidence disabilities do respond to explicit reading programs. Corrective Reading (CR; Engelmann et al., 1999) is a comprehensive reading program specifically designed for students in upper elementary school, middle school, and high school who have deficits in reading recognition and comprehension. Based on the principles of Direct Instruction (Becker & Carnine, 1980), this program provides an instructional script that enables teachers with varying degrees of experience to direct the lessons consistently and with higher integrity (Harris, Marchand-Martella, & Martella, 2000). Corrective Reading has demonstrated efficacy in increasing the reading achievement of adolescent students both with reading deficits and with identified disabilities such as emotional disturbance and learning disabilities (Harris et al.; Malmgren & Leone, 2000; Marchand-Martella, Martella, Orlob, & Ebey, 2000; Polloway, Epstein, Polloway, Parron, & Ball, 1986). In one such study (Malmgren & Leone, 2000), Corrective Reading was implemented as a significant component of an intensive 6-week reading intervention with a group of 45 incarcerated adolescents with reading deficits. Analysis of the results of pre- and posttest standardized assessments revealed that significant gains were noted in the areas of oral reading rate, accuracy of oral reading, and rate and accuracy of oral reading combined. No marked improvement was exhibited on the comprehension subtest, indicating that more intervention time may have been warranted to effect change in this particular area. Nonetheless, this study
demonstrated the efficacy of Corrective Reading in increasing the reading fluency of older students with reading problems.

Reading Fluency

Although older students with E/BD exhibit a range of reading problems, a hallmark characteristic of poor readers is the inability to read text fluently. As noted in National Reading Panel Report (2000), fluency is a key component in the effort to improve reading achievement. Meyer and Felton (1999) noted the need for fluency training alongside decoding and word identification training for poor readers. Specifically, reading fluency influences overall reading ability in several important ways. First, increasing the speed and accuracy with which a person reads affects how well he or she is able to comprehend the text (Dowhower, 1987; Marston, 1989; Meyer & Felton; Shinn, Good, Knutson, Tilly, & Collins, 1992). When poor readers expend most of their energy and attention on decoding individual words, they often have trouble remembering what they have read and the meaning of the text gets lost in the process (Homan, Klesius, & Hite, 1993; National Reading Panel). As such, increased fluency is necessary for readers to focus on reading for meaning. In particular, several studies have documented the correlation between increases in fluency and reading comprehension in students with learning disabilities (Levy, Abello, & Lysynchuk, 1997; Mathes, Simmons, & Davis, 1992; Young & Bowers, 1995). Second, reading fluency can affect a student's motivation to read (Mathes et al.; Neef, Shade, & Miller, 1994; Skinner, 1998). The greater the difficulty a student experiences with reading more quickly and accurately, the more likely that student is to lose the motivation to read, resulting in fewer reading opportunities for these students when compared with their grade level peers (Perfetti, 1992). Unfortunately, exposure to a single standard reading curriculum may not be sufficient to address the significant deficits that students with E/BD exhibit.

Although the research base on improving the reading fluency of students with E/BD is limited, there has been some research in this area. These studies incorporated a variety of reading fluency interventions from using a taped-word intervention to improve sight word reading (Shapiro & McCurdy, 1989; Skinner & Shapiro, 1989) to the use of peer tutors in teaching students to read fluently (Shisler, Top, & Osguthorpe, 1986). Two of these studies investigated the effect of previewing on oral reading performance (Rose, 1984; Skinner, Cooper, & Cole, 1997), and another implemented a repeated reading intervention to improve reading fluency (Scott & Shearer-Lingo, 2002). Skinner, Smith, and McLean (1994) investigated the effect of an immediate and delayed time interval to increase speed in word reading. Collectively, the results from these studies revealed that students were able to read more words correctly per minute as a result of the various interventions.

One intervention that has been found effective in improving the reading fluency of students with and without disabilities is repeated reading (Chard, Vaughn, & Tyler, 2002; Kuhn & Stahl, 2003; Samuels, 1979, 1988). Repeated reading is the rereading of "a short, meaningful passage several times until a satisfactory level of fluency is reached" (Samuels, 1979, p. 404). Since its development, repeated reading has been investigated by many researchers using variations from the original definition to determine the effectiveness of this intervention for improving oral reading fluency (Chard et al.; Kuhn & Stahl). Research has been conducted on the most effective number of rereadings (Meyer & Felton, 1999) and the effectiveness of assistance or modeling when conducting repeated reading (Chard et al.). Results of interventions using repeated reading with elementary age readers have been promising (Dowhower, 1987; Levy et al., 1997; O'Shea, Sindelar, & O'Shea, 1985; Rasinski, 1990; Stoddard, Valcante, Sindelar, O'Shea, & Algozzine, 1993; Van Auken, Chafoules, Bradley, & Martens, 2002; Weinstein & Cooke, 1992), but there is limited information on the utility of this intervention implemented with middle and high school students with high incidence disabilities.

Only six studies were found that examined the use of repeated reading interventions using students in Grades 6 through 12 (Freeland, Skinner, Jackson, McDaniel, & Smith, 2000; Marchand-Martella et al., 2000; Mercer, Campbell, Miller, Mercer, & Lane,
2000; O'Shea, Sindelar, & O'Shea, 1987; Scott & Shearer-Lingo, 2002; Vallely & Shriver, 2003). Of these, two studied the use of repeated reading with students identified as having behavioral problems. Vallely and Shriver investigated the use of a repeated reading intervention on secondary students placed in a residential treatment facility for students with behavioral and academic deficits. The results of the intervention yielded gains in fluency, but these gains did not transfer to comprehension scores. Scott and Shearer-Lingo used a repeated reading intervention as a means of improving the reading fluency of students with E/BD and reported an increasing trend in reading fluency following the implementation of the repeated reading intervention. Although these studies had several limitations, the results are encouraging and warrant further investigation into the effectiveness of the repeated reading intervention with this population of students.

The purpose of this study was to determine the effect of Corrective Reading and a repeated reading intervention on the oral reading performance of junior high school students with E/BD. The following research questions were addressed:

1. What is the impact of a class-wide implementation of the Corrective Reading curriculum on the reading fluency and reading comprehension of adolescents with E/BD?
2. What are the additive effects of a repeated reading intervention, in conjunction with Corrective Reading, on the fluency and comprehension scores of these participants?

Method

Participants

Six male students in the seventh (n = 2) and eighth grade (n = 4) participated in the study (mean age = 13 yrs.). These students were enrolled in a single classroom located within a self-contained school for students with E/BD in a southeastern metropolitan school district. The school serves children from first through eighth grade and at the time of the study had an enrollment of approximately 60 students. Students with high incidence disabilities (e.g., emotional disturbance, learning disabilities, mild mental retardation) are referred to the school when the local school system has determined that their problem behavior is too difficult to be managed within a typical special education school setting (i.e., resource or self-contained classroom). Thus, students have a history of receiving special education services in less restrictive settings prior to being placed in this school. The school incorporates a number of related services into the daily educational routine for each student, including counseling programs, occupational therapy, and speech therapy. Behavior problems are managed through a point and level system; however, extreme acts of aggression and disruption are addressed through time-out procedures as well as in-school and out-of-school suspension policies. According to school district policy, classrooms within this school group students by two grade levels (e.g., first and second graders, third and fourth graders). A more complete description of the student participants can be found in Table 1.

The female teacher involved in the study had a master's degree in special education and had taught seventh grade students with severe emotional and behavioral disorders for 3 years prior to the implementation of this study. The teacher was approached regarding her participation in the study. Following her agreement, consent forms were sent to the parents/guardians of the 8 students in her classroom. All 8 students agreed to participate in the study; however, 2 students were transferred to other settings prior to the beginning of the study.

Measures

Descriptive Assessments

Prior to intervention, several standardized measures were used to assess the students in the areas of reading and social behavior: the Woodcock Reading Mastery Tests—Revised (WRMT-R; Woodcock, 1998), the Gray Oral Reading Test—Third Edition (GORT-3; Wiederhold & Bryant, 1992), and the Social Skills Rating System (SSRS-T; Gresham & Elliott, 1990). Each of these measures was administered as a pretest assessment only. A brief description of each instrument is provided below.
### Table 1
Participant Description

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Gender</th>
<th>Race</th>
<th>Grade</th>
<th>Disability Label</th>
<th>Grades Retained</th>
<th>IQ Scores</th>
<th>Social/Behavioral History from School Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jim</td>
<td>13</td>
<td>M</td>
<td>African American</td>
<td>8</td>
<td>ED</td>
<td>1</td>
<td>75</td>
<td>Sporadic, unpredictable behavior; loss of verbal and physical control when upset; inappropriate language; leaves class when upset.</td>
</tr>
<tr>
<td>Dave</td>
<td>13</td>
<td>M</td>
<td>African American</td>
<td>8</td>
<td>LSI, ED, LD</td>
<td>1</td>
<td>71</td>
<td>Verbal and physical explosive behaviors; difficulty following directions; argues and verbally teases peers.</td>
</tr>
<tr>
<td>Joe</td>
<td>14</td>
<td>M</td>
<td>African American</td>
<td>8</td>
<td>ED, LD, OHI</td>
<td>2</td>
<td>78</td>
<td>Disruptive behavior in class; defiant behavior toward adults; becomes aggressive toward adults and peers when upset.</td>
</tr>
<tr>
<td>Mike</td>
<td>12</td>
<td>M</td>
<td>Caucasian</td>
<td>7</td>
<td>OHI (ADHD)</td>
<td>1</td>
<td>75</td>
<td>Defiant and aggressive behaviors; inattention; hyperactivity; threatens others; weak interpersonal skills.</td>
</tr>
<tr>
<td>Steve</td>
<td>14</td>
<td>M</td>
<td>African American</td>
<td>8</td>
<td>LD</td>
<td>0</td>
<td>87</td>
<td>Physical aggression; threatens toward others; cursing; difficulty ignoring negative behavior.</td>
</tr>
<tr>
<td>Jay</td>
<td>12</td>
<td>M</td>
<td>Caucasian</td>
<td>7</td>
<td>ED</td>
<td>0</td>
<td>87</td>
<td>History of self-abusive, violent, and aggressive behaviors; oppositional behaviors with adults; difficulty working independently.</td>
</tr>
</tbody>
</table>

*Jim, Dave, and Joe, Stanford-Binet IV; Mike, Woodcock-Johnson Cognitive Score; Steve and Jay, Wechsler Intelligence Test–III.

*Note.* Primary labels are as follows: emotionally disturbed (ED), learning disabled (LD), other health impaired (OHI), and speech/language impaired (SLI).
The WRMT-R (Woodcock, 1998) is a comprehensive battery of tests measuring several important aspects of reading ability. Due to the age of the students in the present study, Form H was used to assess reading ability. Form H contains four subtests that combine to form three clusters: a Basic Skills Cluster, a Reading Comprehension Cluster, and a Total Reading Cluster. The test is individually administered and takes approximately 30–45 minutes to administer. Internal consistency reliabilities range from .68 to .98 with a median of .91, and total split-half reliabilities range from .86 to .99 with a median of .97.

The GORT-3 (Wiederhold & Bryant, 1992) is an individually administered instrument that requires about 30 minutes for administration. The GORT-3 consists of two alternate equivalent forms, each containing 13 increasingly difficult passages. Five comprehension questions follow each passage. The test yields useful information about oral reading rate and accuracy, oral reading comprehension, total oral reading ability, and oral reading miscues. The internal consistency reliability for the GORT-3 subtests range in average from .87 to .97 with a standard error of measurement range from 1 to 3. The content and construct validity of the GORT-3 resulting in correlation coefficients is considered to be in the "moderate" range with a median coefficient of .57 providing evidence of the content and construct validity of the GORT-3.

The teacher form of the Social Skills Rating System (SSRS-T; Gresham & Elliott, 1990) was administered to assess teacher perception of students' social behavior. The SSRS-T is a standardized behavior rating scale intended to identify the competence of children in the areas of social skills, problem behaviors, and academic competence. Each item is evaluated in terms of frequency of occurrence and importance to the rater. Coefficient alpha reliabilities for subscales and total range from .86 to .94 for social skills, .78 to .88 for problem behavior, and .95 for academic competence.

The descriptive assessments were administered by a licensed psychometrist approximately 6 weeks into the school year. On an individual basis, participants were taken to an empty classroom where the WRMT-R and GORT-3 were given. The teacher was asked to complete the SSRS-T for each participant during her planning period.

**Weekly Reading Probes**

Beginning in the baseline condition, participants were assessed on two curriculum-based assessment (CBA) probes to measure fluency when reading in text. Probes were conducted on either Thursday or Friday of each week. The first probe was a near-transfer measure taken from the *SRA Specific Skills Series* (Boning, 1998), Level C. This level was chosen because the readability of the passages was equivalent to the third grade reading level, which was near the mean functioning level for all the participants in the study. The length of the passages ranged from 96–140 words. The participants were asked to read each probe in its entirety while the examiner marked missed words and measured the amount of time the student took to read the passage. The students then answered five comprehension questions read by the examiner that were designed by the *Specific Skills Series* to be asked at the end of the passage. The comprehension questions from the *SRA Specific Skills Series* are composed of five multiple-choice questions about the passage. The format of the questions is consistent throughout each passage. The first comprehension question asks the reader to identify the best title for the passage. The next two questions ask about facts that are stated in the passage. The fourth question asks the reader to infer or figure out the answer to a question where the information is not stated directly in the passage. The last question is a vocabulary question about the definition of a word used in the passage.

The reading fluency of participants was calculated using the number of words read correctly by the student and dividing these numbers by the number of seconds it took the student to read the passage. The quotient was then multiplied by 60 to obtain a reading fluency score of the number of words read correctly per minute. The comprehension score was determined by adding the number of correct answers provided by the students out of five questions relevant to the passage.
The second probe was a generalization measure that examined the student’s current functioning in the seventh grade core curriculum. This probe was randomly selected from the seventh grade literature book (The Language of Literature, 2001) in which the students would be working if they were functioning on grade level. Passages were randomly selected from the seventh grade literature book and the initial 120 to 150 words were typed on a page from which the student read. The students were instructed to read this probe as quickly and accurately as possible for 1 minute. The reading fluency for this probe was calculated using the number of words read correctly in a minute. If a student was absent for a scheduled probe, he was assessed the day he returned to school.

Reliability of the probe administration was assessed using audiotaped probe sessions and a blind scorer. The second scorer scored the passages independently of the original scoring sheets while listening to the probe sessions on the audiocassette recorder. The sheets were then compared to determine the number of disagreements between the two scorers. Reliability was calculated by dividing the total number of agreements by the total number of words read. Any counting errors for hesitations (3 seconds) that were off by more than 1 second on the tape were marked and calculated into the total reliability score. Reliability checks were conducted on 35% of all probes administered. On the SRA passage score, the range of agreement was between 94% and 98% agreement with a mean agreement of 95.6%. For the comprehension questions for the SRA passage, the reliability was between 82% and 100% agreement with a mean agreement of 89.8%. On the seventh grade passage, the reliability scores were between 94% and 98% agreement with a mean agreement of 96.3%.

**Intervention Procedures**

**Baseline**

The classroom was observed for 5 weeks prior to the implementation of the Corrective Reading curriculum to determine the impact of the existing reading program in this classroom. A typical reading period consisted of the following activities: At the beginning of the class period, students were given approximately 10 minutes to write in their journals. Then, the teacher reviewed the spelling words for that week and discussed the parts of speech that the spelling words represented. Students were also given a writing activity using their spelling words to complete during the class period. For the last 15 minutes of the period, students took turns reading a story aloud that had been selected by the teacher. Occasionally, the teacher had the students play games to assist them with both listening and cooperation skills. During this time, the weekly reading probes were administered to monitor student growth during this phase.

**Intervention 1: Corrective Reading**

As discussed earlier, Corrective Reading is a reading program based on the principles of Direct Instruction (Becker & Carnine, 1980) that provides instructional scripts for teachers to use when implementing the program. The following steps were taken for the implementation of this phase of the study. First, the Corrective Reading Placement Test was administered to all students in the classroom by project staff. Based on the results of this test, all students met the criteria for the B1 level of the Corrective Reading Decoding series. This level of instructional placement is designed for students who typically guess at words, exhibit difficulty reading words such as “that,” “what,” “a,” and “the” in a sentence, and are inconsistent in the way they read.

More specifically, this level of CR focuses on refining students’ sound and word discrimination skills and increasing their levels of fluency. CR teaches decoding strategies through a series of lessons that consists of the following:

1. **Word Attack Skills:** These skills involve practice with sounding out words on the chalkboard and in the student book. The students work with sound combinations, ending sounds, internal vowel conversions, and word reading. This section of the lesson lasts approximately 10 minutes a session.
2. **Group Reading:** In this section, students read a story that is divided into parts. Af-
ter each part, students are asked to orally answer one to five questions read by the teacher about the section that was just read. This part of the lesson lasts approximately 15 minutes a session.

3. Workbook Exercises: The workbook exercises include both teacher-directed activities and independent student work. Students answer questions about the story they read and complete activities using words from the story. This section of the lesson lasts approximately 15 minutes a session.

Second, following the administration of the placement test, the teacher received a total of 5 hours of CR training by a doctoral student who had substantial experience with the program. In addition, the teacher had a working knowledge of direct instruction procedures that expedited the training time. In the first 2 hours of training, the trainer presented an overview of the curriculum and covered issues of pacing, signaling, following the script, and error correction. During this time, the teacher practiced using the curriculum with the trainer. After the 2-hour training, the teacher practiced with individual students over the course of several sessions. Following these training sessions, the teacher was observed three times using the CR curriculum with her entire classroom and was provided feedback by project staff regarding her adherence to the scripted CR lesson.

Implementation. The teacher implemented the Corrective Reading curriculum, Level B1, in her classroom to the entire class in a large group format during the regularly scheduled reading instructional time. The curriculum was delivered for 30-40 minutes, 4 days each week (Monday-Thursday). The ratio of students to teacher during the CR segment was approximately 6:1 although this varied somewhat due to absences. The class was arranged in three rows of desks with three desks in each row. Each student had an assigned desk; however, the teacher rearranged seating on some days (e.g., moving a student closer to the front of the room) because of disruptive behavior.

Treatment integrity. The first author conducted observations seven times during the study to determine the fidelity of the Corrective Reading implementation. During these observations, an observer used a checklist to measure the teacher's adherence to the CR script. The percentage of the components followed using the CR script was then calculated to determine the percentage of session integrity. On average, the CR curriculum was implemented with 95% accuracy (range 80%-100%) across the seven observations. A copy of the treatment integrity form can be found in the Appendix.

Intervention II: Repeated Reading

The purpose of this phase of the study was to investigate the additive effects of a repeated reading intervention to the CR intervention using a multiple baseline design across participants. The repeated reading treatment was composed of a series of passages the students read several times to improve their fluency in text. The passages selected for the repeated reading intervention were taken from the Great Leaps Reading Stories (Campbell, 1999) and were chosen based on the high interest of the stories for secondary students. These passages range in difficulty from primer to seventh grade. Based on the participants' reading ability assessed at the beginning of the study, passages in the second to seventh grade range were used as the repeated reading passages.

Implementation. The repeated reading intervention consisted of the following steps. During the afternoon, after Corrective Reading instruction, students were taken in pairs to the school library by a research assistant (RA). The library was chosen because it allowed for uninterrupted training and allowed the classroom teacher to continue instruction with the remaining students in the classroom. The 2 students began each session by chorally reading aloud an unfamiliar passage twice with the RA. If students paused on a particular word for more than 3 seconds, the RA provided the word. After chorally reading the passage twice, the students alternated individually reading the passage out loud. The first student read the passage out loud while the second student read along silently and corrected any unknown words after waiting 3 seconds. Then, the second student read the passage out loud with the
first student assisting with any unknown words. After the students read the passage a total of four times, each student individually read a new passage from the Great Leaps Reading Stories that was on the same difficulty level as the previous training passage. This passage was timed and the RA graphed the number of words read correctly so that the students could monitor their reading progress on this final Great Leaps passage. A copy of the repeated reading script can be found in the Appendix.

A research assistant with a bachelor's degree in special education implemented the repeated reading intervention 4 days a week (Monday through Thursday), and the intervention lasted approximately 20 to 30 minutes a day. The RA received 2 hours of training from the first author on the implementation of the repeated reading intervention. For the first hour of training, the first author modeled how to implement the repeated reading intervention and provided a rationale behind the repeated reading research. For the second hour, the RA practiced the implementation of the repeated reading intervention with the trainer.

Treatment integrity. The RA was observed on four occasions during the course of the study to ensure that the procedures were followed for the repeated reading intervention. Data were collected during these observations using a checklist format of procedures to be followed. If an item on the checklist was followed, a second research assistant checked off that item. The RA followed the procedures for the repeated reading format 95% of the time (range 90%-100%). A copy of the treatment integrity form for repeated reading can be found in the Appendix.

Experimental Design

A multiple baseline design across student pairs was implemented to determine the effect of the Corrective Reading intervention combined with the repeated reading fluency intervention. During baseline, the students received reading instruction using the procedures typically used by the teacher (see above baseline description). This phase lasted for approximately 5 weeks. Intervention I, Corrective Reading, was implemented with the entire class in a large group format. This allowed the authors to examine the impact of a standardized, direct instruction reading program and to establish a consistent reading condition. After the teacher implemented the CR intervention for approximately a 7-week time period, Intervention II, repeated reading, was added as the teacher continued to use the CR program in her classroom. Initially, the first student pair (Group 1) began to receive the repeated reading. During this time, the other two pairs were also taken to the library and spent the same amount of time (20 to 30 minutes) listening to stories read by the research assistant. The repeated reading intervention was implemented to these remaining two pairs (Group 2 and Group 3) in a staggered fashion consistent with multiple baseline procedures.

Results

Descriptive Results

Results from the descriptive measures indicated that all the participants were functioning below grade level in reading. Two participants scored 1.5 standard deviations below the mean on the WRMT-R, and the remaining 4 fell at or below 2 standard deviations below the mean. On the GORT-3, all but 1 student fell below the first percentile on the oral reading quotient, a measure of rate and accuracy. All students exhibited deficits in the area of problem behaviors on the SSRS, but 2 students fell within the average range of social skill functioning on this instrument. The results of these measures are summarized in Table 2.

Academic Data

For each phase, the number of words read correctly per minute on the two reading measures for each participant is displayed in Figures 1 and 2 along with a regression trend line for each condition. Means, standard deviations, and effect sizes (ES) are presented in text. Effect sizes for determining the impact of the CR condition were calculated by subtracting the mean of the baseline condition from the mean of the CR treatment condition and dividing by the standard deviation of the baseline condition. To summarize the impact of the repeated read-
<table>
<thead>
<tr>
<th></th>
<th>WRMT-R Word ID</th>
<th>WRMT-R Word Attack</th>
<th>WRMT-R Passage Comp</th>
<th>GORT-3 Oral Reading Quotient</th>
<th>SSRS Social Skills</th>
<th>SSRS Problem Behaviors</th>
<th>SSRS Academic Competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joe</td>
<td>60 (.04)</td>
<td>75 (5)</td>
<td>70 (2)</td>
<td>52 (&lt;1)</td>
<td>77 (6)</td>
<td>130 (98)</td>
<td>83 (13)</td>
</tr>
<tr>
<td>Jim</td>
<td>59 (.3)</td>
<td>72 (3)</td>
<td>62 (1)</td>
<td>&gt;52 (&lt;1)</td>
<td>73 (4)</td>
<td>133 (&gt;98)</td>
<td>70 (2)</td>
</tr>
<tr>
<td>Dave</td>
<td>52 (.1)</td>
<td>72 (3)</td>
<td>62 (1)</td>
<td>52 (1)</td>
<td>83 (13)</td>
<td>125 (95)</td>
<td>81 (10)</td>
</tr>
<tr>
<td>Mike</td>
<td>70 (2)</td>
<td>61 (.5)</td>
<td>68 (2)</td>
<td>52 (&lt;1)</td>
<td>84 (14)</td>
<td>119 (90)</td>
<td>94 (34)</td>
</tr>
<tr>
<td>Steve</td>
<td>66 (1)</td>
<td>78 (7)</td>
<td>65 (1)</td>
<td>&gt;52 (&lt;1)</td>
<td>96 (39)</td>
<td>113 (81)</td>
<td>109 (73)</td>
</tr>
<tr>
<td>Jay</td>
<td>78 (7)</td>
<td>80 (9)</td>
<td>80 (9)</td>
<td>73 (4)</td>
<td>95 (37)</td>
<td>117 (87)</td>
<td>&gt;115 (&gt;84)</td>
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</tbody>
</table>

ing intervention, effect sizes were calculated by subtracting the mean of the CR condition from the mean of the CR plus repeated reading condition and dividing by the standard deviation of the CR condition (Kromrey & Foster-Johnson, 1996). The mean comprehension scores for each group were interpreted using a bar graph and displayed in Figure 3.

**SRA Words Correct Per Minute (WCPM)**

For Group 1, both Jim and Dave demonstrated relatively low levels of reading fluency during the baseline condition (Jim, $M = 32, SD = 5.66$; Dave, $M = 17, SD = 2.91$). Following implementation of the CR curriculum, both students showed a slight increase in fluency (Jim, $M = 39.71, SD = 6.26, ES = 1.35$; Dave, $M = 20.71, SD = 4.42, ES = 1.28$), although there was considerable overlap between these two phases. Following implementation of the repeated reading intervention (Intervention II), both students demonstrated improvement in their rate of correct reading. Specifically, Dave showed improvement in reading fluency with the addition of the repeated reading component ($M = 34, SD = 3.91, ES = 3.02$). Jim also exhibited comparable improvement during the repeated reading condition ($M = 51.1, SD = 7.96, ES = 1.8$).

With regard to Group 2, for Joe, there was slight acceleration in his rate of correct words per minute during the baseline condition ($M = 43.4, SD = 12.30$). There was an immediate acceleration in trend following implementation of the CR curriculum with a gradual leveling off of performance toward the end of that phase ($M = 62.18, SD = 11.45, ES = 1.58$). Implementation of the repeated reading component resulted in a change in level and trend during the first 3 weeks of the intervention with a decrease in level during the last 3 weeks of the intervention ($M = 79.5, SD = 14.01, ES = 1.45$). Mike’s performance was somewhat different. The slight upward trend during baseline ($M = 27.2, SD = 5.81$) continued following implementation of the CR program ($M = 35.72, SD = 5.26, ES = 1.47$). However, following the introduction of the repeated reading component, there was a change in level and trend during the first 3 data points followed by slight decrease in level and reduction in slope in his performance with minimal overlap in data points ($M = 50.25, SD = 7.91, ES = 2.75$).

For the third group, Steve and Jay, the impact of the CR program and repeated reading intervention was more inconclusive. Both students were performing at a higher level during baseline than the other two groups of participants, and exhibited some acceleration in their performance during the baseline condition (Steve, $M = 55, SD = 6.92$; Jay, $M = 55.4, SD = 11.72$). Although his performance was variable, Steve maintained a steady rate of growth through the CR condition ($M = 70, SD = 9.69, ES = 1.94$), whereas Jay seemed to demonstrate higher levels of performance during the latter half of this condition ($M = 78.07, SD = 20.66, ES = 2.17$). During the repeated reading condition, both students exhibited slightly lower levels of performance (Steve, $M = 67.25, SD = 9.17, ES = .08$; Jay, $M = 79.75, SD = 12.79, ES = -.28$). Interpretation of these data is somewhat difficult; however, it appears that there may have been a ceiling effect for these 2 participants, particularly for Jay.

**Seventh Grade Literature Probe**

Visual analysis of the data from the reading probes taken from the seventh grade literature text revealed a slightly different response by the participants. For Group 1, Jim and Dave, there was a dramatic decrease in the rate of correct words read during the baseline condition (Jim, $M = 31, SD = 14.11$; Dave, $M = 20.2, SD = 8.73$). Following implementation of the CR program, there was an immediate change in level as well as increased stability in reading fluency for both Jim ($M = 37.28, SD = 4.68, ES = .45$) and Dave ($M = 25.57, SD = 5.56, ES = .73$). Following the implementation of the repeated reading intervention, there was a gradual increase in reading fluency on the seventh grade literature passage with Jim showing slightly higher rates of reading ($M = 47.58, SD = 14.52, ES = 2.2$) than Dave ($M = 35.67, SD = 10.61, ES = 1.63$). This increase in trend continued throughout the repeated reading phase.
Figure 1. SRA probes.
A similar pattern was observed in Group 2's performance. Following a decrease in reading fluency during the baseline condition (Joe, $M = 39.6, SD = 14.55$; Mike, $M = 32.8, SD = 13.66$), an immediate change in level and increased stability occurred following the CR phase of the study. During this condition, Joe showed more improvement in fluent reading ($M = 49.36, SD = 8.82, ES = .67$) when compared to Mike's growth ($M = 34.18, SD = 8.13, ES = .10$). Introduction of the repeated reading program resulted in an accelerating trend for both Joe and Mike. This acceleration continued for Mike ($M = 50, SD = 15.74, ES = 2.75$) for the duration of the study; however, Joe's performance ($M = 64.17, SD = 15.80, ES = 1.45$) began to decelerate during the last two probe sessions.

As with the previous probe, the data for Group 3 showed a somewhat different pattern. During baseline, Jay showed a similar decrease in reading fluency ($M = 56, SD = 19.26$),
Figure 3. SRA comprehension questions.
whereas Steve performed somewhat inconsistently during baseline ($M = 59.2$, $SD = 14.08$). After the classwide CR program was implemented, there was increased stability in both students' performance with a slightly accelerating trend during the last 4 weeks of this condition (Jay, $M = 64.47$, $SD = 15.16$, $ES = .24$; Steve, $M = 62.53$, $SD = 8.72$, $ES = .44$). Implementation of the repeated reading intervention resulted in a drop in level but an increase in acceleration with both students reaching their fastest performance during this condition (Jay, $M = 64.47$, $SD = 15.16$, $ES = .24$; Steve, $M = 62.53$, $SD = 8.72$, $ES = .44$). Given the limited number of data points in this condition for this group, it is unclear whether this level of growth would have maintained at its current rate.

**Comprehension Measures**

A bar graph, Figure 3, was used to visually analyze the students' responses to the comprehension questions from the *Specific Skills Series* probes. For Group 1, Dave demonstrated a slight decrease in his level of correct responding between baseline and the CR condition; however, he showed an increase of almost two correct responses on the comprehension questions during the repeated reading condition. In contrast, Jim exhibited a slight increase in correct responses with the introduction of the CR curriculum and a similar slight increase during the repeated reading intervention. In Group 2, both Joe and Mike showed a very slight increase in the average number of correct responses following the implementation of CR. The addition of the repeated reading intervention resulted in an additional .5 increase for Joe whereas Mike averaged one additional correct response on the comprehension questions during this phase. The comprehension data for Group 3 was somewhat mixed. Jay demonstrated a slight increase in his average correct responding between baseline and CR. However, the addition of repeated reading did not result in a change in his performance on this measure. Steve showed improvement on correct responding during the CR phase, but like Jay, exhibited no change in his performance on the comprehension probes during the repeated reading condition.

**Discussion**

Students with E/BD experience numerous difficulties including significant struggles in the area of reading. Although there have been a number of reading interventions that have been empirically validated with students identified as having reading disabilities, little of this work has been conducted with students identified as E/BD. The E/BD research literature becomes even narrower when examining the academic needs of junior high and high school students with E/BD. The purpose of this study was to investigate the effectiveness of a repeated reading intervention, used in conjunction with a systematic reading package, on the oral reading fluency of junior high students receiving services for E/BD.

Results of the study indicated that students experienced moderate growth in oral reading fluency during implementation of the CR program. For 4 of the 6 participants, the addition of the repeated reading component resulted in an increase in oral reading rates both at their functional reading level and in age/grade leveled text. In addition, the same 4 students were more accurate in their responses to comprehension questions during the repeated reading phase of the study. For the 2 students who were less responsive to the intervention, it appears that there may have been a ceiling effect given that these students were initially reading at a higher rate than the other participants.

These results support earlier research on ways to improve the reading fluency of middle and high school students with E/BD (Scott & Shearer-Lingo, 2002; Shapiro & McCurdy, 1989; Skinner & Shapiro, 1989; Skinner et al., 1994). The current study extended this literature by controlling the type of reading instruction the students received prior to implementing the repeated reading intervention. Using this approach, it was possible to ascertain, to some degree, the impact of the intervention on oral reading fluency above what might occur from an empirically validated reading program.

Analysis of the data revealed that although identifiable progress was made for 4 of the 6 participants, the oral reading rate displayed by these students at the end of the study was still below what might be expected from
same-age students without disabilities (100+ words per minute; Hasbrouck & Tindal, 1992). Thus, although the intervention detailed in this study might be deemed effective, it is apparent that the improvement in reading performance was probably not significant enough to overcome the struggles in reading displayed by the participants. More research is need in this area to determine what type and amount of intervention is needed to improve the reading performance of students with E/BD.

Limitations

The research presented in this article supports the need to improve the reading fluency of students with E/BD and provides an effective and efficient means of intervening with this population of students; however, there are several limitations that may have affected the results of this study. Of first concern was the sporadic student attendance. The number of absences during the course of the study ranged from 3 to 28 (out of 96 intervention days) with 4 of the students missing 12 or more days. These absences were exacerbated by the significant behavioral problems associated with the group. There were many occasions when the participating students missed instruction as a result of in-school suspension (ISS) and suspension from school due to behavioral incidents. The percentage of participation in repeated reading sessions was calculated for each participant and ranged from 65% to 77%. Thus, although it appears that the intervention was somewhat effective for the students in this study, it could be argued that the students did not receive a maximum level of treatment dosage, and as a result, it was difficult to determine the true impact of the repeated reading intervention. These participation rates highlight a primary concern in the education of students with E/BD; the behavioral needs of this population often overshadow the need for quality instruction to address the academic deficits of this group. This was true even within an educational setting that specialized in managing inappropriate behavior. Although a number of hypotheses have been proposed for explaining the lack of effective teaching with these students (Wehby, Lane, & Falk, 2003), the absence of instruction may exacerbate the limited skills students with E/BD demonstrate in the area of reading. School psychologists could play an important role in this area by monitoring the balance between behavior management and academic instruction. Future studies with this population are needed that address the mechanisms by which management procedures are integrated with academic programs so that higher levels of participation occur during reading instruction.

A second limitation is related to the amount of exposure to the repeated reading intervention, particularly for the third pair of students. Although the limited response to the intervention by this group may be attributed somewhat to a ceiling effect, it is possible that the limited exposure of this group to the repeated reading program (4 weeks) prevented the participants in this group from achieving any benefits. Future studies should identify acceptable levels of treatment exposure to reading interventions to determine the effectiveness of these types of fluency interventions. Finally, a third limitation was the lack of a maintenance phase to determine if gains in fluency continued for the students following the withdrawal of the repeated reading component. Because the study concluded at the end of the school year, collection of these data was not possible. Determining the long-term effects of reading interventions is needed to make recommendations for effective reading practices for these students.

Implications for Practice and Research

The current study demonstrated that supplementing a standard reading curriculum with fluency building activities can improve the reading performance of students with E/BD. These findings extend the existing research on the effectiveness of Corrective Reading and repeated reading programs by applying these approaches to older students with reading and behavior problems. A strength of the study is that we were able to determine students' responses to a consistent, teacher-implemented reading program prior to evaluating the effects of the repeated reading program. Previous research has noted the lack of instructional programming in classrooms for students with E/BD (Wehby,
Although the teacher in the present study implemented the CR intervention, she needed assistance by our research team in initiating the reading program. Future research should investigate the barriers to the implementation of effective academic programming in classrooms for students with E/BD.

There has been speculation that some of the inappropriate behavior of students with E/BD is related to the academic difficulties characteristic of this population (Hinshaw, 1992). It has been stated that research needs to be conducted to determine the effect of academically based interventions on inappropriate social behavior (Popkin & Skinner, 2003). Although not reported, extensive behavioral recordings were conducted on the aggressive and disruptive behavior of the participants during reading instruction and little change was found in the frequency of these behaviors. Possible reasons for this finding include insensitive observational measures or the absence of significant increases in reading levels. Despite the lack of behavioral improvement, we believe that continued work in this area is needed to better understand the relation between problem behavior and academic achievement.

Finally, as noted in the introduction, fluency plays an important role in both the ability to read as well as the ability to comprehend what has been read. Improvements were observed in both of these areas with the use of repeated reading. As implemented in this study, the repeated reading intervention was relatively straightforward. However, given the complexities of working with this population of students, outside resources were needed to execute the fluency intervention. Future work in this area should investigate the ability to use existing classroom resources to provide the supplemental instruction needed for this population of students.

**Summary**

Reading is an area of great concern for junior high school students with E/BD. It is hoped that research on reading fluency, reading comprehension, and reading strategies will lead to a greater focus on the academic needs of this population. School psychologists could play a valuable role to this end by using the empirical literature addressing the reading needs of students with E/BD to make recommendations to teachers on how to incorporate these validated practices in their classrooms. The reading intervention outlined in this article demonstrates that positive growth in reading can be obtained for junior high students with E/BD. Despite the limitations mentioned previously, this research offers a promising direction for research in the area of E/BD. Specific areas for future investigation should focus on the most effective means of improving the reading rate and comprehension in students with E/BD. This might include additional supplemental programs in combination with contingent reinforcement procedures for both fluency and comprehension of reading material. The discouraging outcomes often associated with students with E/BD necessitate the need for effective academic instruction that supports and enables these students to experience greater success in the school environment.

**References**


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Appendix

CORRECTIVE READING
Treatment Integrity Checklist

Teacher: ___________________________ Observer: ___________________________ Date: ________________ 
School: ___________________________ Level: ___________________________ Lesson: ___________________________

Components | Status | None | Some | All
---|---|---|---|---
1. Reviews behavioral expectations | | | |
2. Follows lesson plan | | | |
3. Completes all exercises in plan | | | |
4. Uses appropriate signal for students to respond | | | |
5. Provides corrective feedback | | | |
6. Repeats steps as necessary | | | |
7. Pronounces individual sounds correctly | | | |
8. Maintains appropriate and quick pace | | | |
9. Provides opportunities for all students to respond during individual practice time | | | |
10. Checks and observes student performance | | | |

Percentage of Components

Notes:

REPEATED READING INSTRUCTIONS

INTRODUCTION:

Students will read the story in cooperative pairs with the research assistant. Begin the lesson by stating the objective everyday.

Today you will read a story aloud four times together. The first two times we read, we will read the story together. Then, each of you will read the same story again helping each other with any words that you do not know.
DIRECTIONS FOR STUDENT READING:

- While the student is reading the story, wait 3 seconds before you tell the student the word that they do not know.
- In the beginning, you will have to assist the partner in the counting and walk him through how to count when the student is stuck on a word. Switch the partners daily so that the order of reading aloud will not affect the results.

IF THE PARTNER IS ABSENT, HAVE THE STUDENT READ THE STORY THROUGH FOUR TIMES WHILE YOU ASSIST HIM WITH WORDS THAT HE DOES NOT KNOW.

- Each student will read the second story and be timed on the timer. While the first student is reading the story, the other student will stand outside the door. Then, the second student will read the story and the first student can stay in the room. Switch the order of the student reading daily. The RA will then calculate the WPM of each student and chart their progress on the graph.

PARTNER READING:

- Now, you are going to read the same story to each other. Today, ______ will start (remember alternate partners daily).
- Remember, you must wait 3 seconds before helping your partner with a word. Count 1000, 2000, 3000, then say the word.
- You may begin.

INDIVIDUAL READING

- Now that we are finished reading the first story, each of you will be timed individually while reading the second story. Then, we will chart your speed on your daily chart. At the end of the week, we will examine our progress together. Send one partner out of the room and time the other, then alternate. Remember, switch the order of partners daily.
- Directions: Read this story out loud as quickly and correctly as you can. I will help you with any words you do not know. Ready, begin. (start timing-score time and errors in reading at the end of the passage)

TREATMENT INTEGRITY CHECK ON REPEATED READINGS IMPLEMENTATION

Name of students: ____________________________ Date: ____________

Instructor: ____________________________ Observer: ____________________________

None (0) Some (1) All (2)

1. Reviews behavioral expectations
2. Introduces the lesson
3. Follows scripted directions
4. Reads aloud with students twice
5. Has each student read story once
6. Completes all reading exercises
7. Alternates reading turns with students
8. Provides corrective feedback
9. Maintains appropriate and quick pace
10. Checks and observes student performance