

Effects of Peer Mediated Instruction on the Oral Reading Fluency Skills of High School Aged Struggling Readers

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This study examined the effects of peer-mediated oral reading fluency instruction and narrative texts on the reading fluency and comprehension skills of adolescent struggling readers in an alternative high school setting over a period of 10 weeks. The results of this study indicate that peer-mediated repeated reading appears to be the most effective intervention for this population of students. Considerations for future directions of research, along with limitations of the study, are discussed.

BACKGROUND

Reading is an essential skill. Having the ability to read fluently and effectively has the potential to open doors for academic success and economic independence (Brunner, 1993). For those students with learning disabilities who struggle with basic reading concepts (e.g., decoding, fluency), chances increase for academic failure (Dudley, 2005; Hudson, Lane, & Pullen, 2005). Educators have been faced with the challenge of implementing effective reading fluency strategies since the National Reading Panel (NRP: 2000) deemed fluency to be an essential aspect of literacy instruction. A variety of instructional methods have been used, including the use of word boxes, repeated reading strategies, and word lists. All of the above mentioned strategies have been shown to be effective in improving the basic reading skills of elementary-aged readers with and without disabilities (Kuhn, 2005; Kuhn et al., 2006; Mastropieri, Leinart, & Scruggs, 1999; Sindelar, Monda, & O'Shea, 2001). However, few studies have shown equal benefits with struggling adolescent readers (Wexler, Vaughn, Edmonds, & Reutebuch, 2008). It is imperative that the research-base extends the knowledge of fluency instruction so as to provide secondary level educators with effective strategies to address the needs of older students who struggle with basic reading skills.

Adolescent struggling readers have unique characteristics that should be taken into account when planning effective fluency instruction. Primarily, once a student leaves elementary school the educational demands become more

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challenging. At the secondary level students are required to think critically and apply higher level thinking skills to reading text, especially now that the Common Core Standards (CCS) are used nationally. With the CCS in place, English/language arts classes have become environments where students are expected to apply the phonemic, decoding, and fluency skills taught to them at prior levels, with ease. However, many students enter the secondary level without these skills, either because of chronic absences, ineffective teaching methods, or learning difficulties (Lange & Yesseldyke, 1998). For those students who have limited skills in basic reading, the secondary curriculum presents many challenges because fluency is an essential step toward comprehension of text (LaBerge & Samuels, 1974). Also, at the secondary level peer influence is important. It is difficult to provide adequate levels of instruction in basic skills without presenting stigma or isolating the individuals in need. Since high school is the last step where educators can make substantial change to prepare students with learning disabilities for post-school transition, it is critical to provide effective literacy instruction to help these students gain academic success. Students enrolled in alternative high schools may be at greater risk of academic failure (Christle, Jolivet, & Nelson, 2005; Poyrazli, Ferrer-Wreder, Meister, Forthun, Coatsworth, & Grahame, 2008) so implementing an efficient fluency strategy is even more critical.

Fluency Instruction

Two strategies shown to be effective in improving the reading fluency skills of struggling readers are repeated reading and continuous reading. Both strategies have been used at the elementary level for students with and without disabilities in a variety of settings.

Repeated reading. Repeated reading is a process where a student is given a short meaningful passage at their instructional reading level and instructed to read it multiple times (Samuels, 1997). A number of researchers have looked into the effects of repeated readings with students at the elementary level, including the investigation of a different number of readings (Begeny, Daley, & Valleley, 2006; Kostewicz & Kubina, 2010; Sindelar et al., 2001; Valleley & Shriver, 2003), with and without performance feedback (Chafouleas, Martens, Dobson, Weinstein, & Gardner, 2004), with direct instruction programs (Stevenson & Frederick, 2003; Strong, Wehby, Falk, & Lane, 2004), with modeling (Skinner, Cooper, & Cole, 1997), and with peer-mediated instruction (Musti-Rao, Hawkins, & Barkley, 2009). However, very few studies have been published that use repeated reading to address the unique needs of adolescent struggling readers at the secondary level (Castillo, 2011; Scott and Shearer-Lingo, 2002; Swain, Leader-Janssen, & Conley, 2013; Valleley & Shriver, 2003).

Although only a few published studies exist on repeated reading for secondary-age struggling readers, the results are promising (a) across settings (Mercer, Campbell, Miller, Mercer, & Lane, 2000), (b) when using curriculum-

based measures (Freeland, Skinner, Jackson, McDaniel, & Smith, 2000), to improve comprehension skills (Therrien & Hughes, 2008), and (c) in conjunction with peer-mediated instructional strategies (Marchand-Martella, Martella, Bettis, & Blakley, 2004; Strong et al., 2004). The published research suggests the use of repeated reading should highlight more effective ways to use the method to address the needs of adolescent struggling readers in alternative educational settings. Repeated reading, as a supplemental fluency strategy, may provide older struggling readers with the adequate amount of practice needed for them to increase their reading fluency and, in turn, their comprehension.

Continuous reading. Another strategy used to improve reading fluency skills is continuous reading. During continuous reading a student is assigned three different passages from grade-leveled text to read for one minute. Less research is available on the effectiveness of continuous reading when compared with the literature base supporting repeated reading. However, there are a few studies of note that support the use of continuous reading in improving reading fluency skills (Homan, Klesius, & Hite, 1993; O'Connor, White, & Swanson, 2007). Authors of previous investigations suggest future studies continue to examine the effects of repeated reading versus continuous reading with varied populations, across settings and disability groups.

Unlike repeated reading, continuous reading fluency strategies expose students to a larger amount of text in a short amount of time (Homan et al., 1993). Older struggling readers may benefit from the use of continuous reading because the structure provides students with practice reading a wide amount of text and may increase comprehension skills. Future researchers should examine the effects of repeated reading versus continuous reading on the oral reading fluency and comprehension skills of older struggling readers enrolled in alternative education settings.

Special considerations should be taken into account when implementing reading fluency instruction with older struggling readers in alternative settings: (a) variable student reading levels, (b) behavioral difficulties, and (c) prior experience with academic failure. One research-based strategy shown to be effective with instructing a variety of students at one time with different academic levels is peer-mediated instruction.

Peer-Mediated Reading Interventions

Addressing the needs of adolescent struggling readers enrolled in alternative educational settings can be difficult. However, including peer-mediated instructional strategies has been shown to increase the amount of academic responding and participation of secondary-aged students with and without disabilities (Bowman-Perrott, Greenwood, & Tapia, 2007; Calhoun, 2005; Mastropieri, et al., 2001; Sutherland & Snyder, 2007). Peer-mediated instruction

has been shown to impact student on-task behavior (Sutherland & Snyder, 2007), overall reading fluency (Fuchs, Fuchs, & Kazdan, 1999), and social behavior (Franca, Kerr, Reitz, & Lambert, 1990) for adolescent age students. Peer-mediated instruction also has been used in conjunction with structured reading programs (Fuchs, Fuchs, Mathes, & Simmons, 1997; Marchand-Martella et al., 2004). Studies have shown that when students have the opportunity to work together they are able to support the learning of one another (Fuchs et al., 2001). In an extension of Peer-Assisted Learning Strategies (PALS), Fuchs and colleagues (2001) trained high school students to use peer-mediated instruction and structured reinforcement systems to improve academic achievement in life skills courses and social relationships. For adolescent struggling readers in alternative educational settings, peer-mediated instruction may provide peer support and greater opportunities for the successful academic responding needed to keep students engaged and participating in academic tasks.

Peer-mediated instruction also has benefits for the classroom teacher. Vaughn, Klingner, and Bryant (2001) found that peer-mediated instructional strategies provided teachers with the opportunity to “*arrange instruction so that all students benefit*” (p. 72). The structure of peer-mediated instruction allows teachers the chance to differentiate, thereby scaffolding instruction for a variety of academic levels within one classroom. Also, teachers can tailor instruction for individual groups of students when needed. With peer-mediated instruction, the teacher assumes the role of the classroom facilitator, with the flexibility to assist a greater number of students when compared with traditional classroom teaching techniques (Vaughn et al., 2001). Teachers in alternative education settings can benefit from peer-mediated instructional strategies because of the variability of student levels, students with and without disabilities, and potential challenging behaviors presented in the classroom.

The supplemental strategies under investigation, peer-mediated instruction using repeated reading and continuous reading of narrative text, are interventions that focus on reading fluency development and comprehension skills of adolescent struggling readers. This research examined the effects of using peer-mediated oral reading fluency instruction on the reading fluency and comprehension skills of high school-aged struggling readers in an alternative high school. This investigation attempted to answer the following research questions: (1) which peer-mediated fluency strategy, repeated reading or continuous reading, was more effective in improving the oral reading skills of adolescent struggling readers; (2) which peer-mediated fluency strategy, repeated reading or continuous reading, was most effective for improving the reading comprehension skills of adolescent struggling readers; and (3) how did the participants perceive the effectiveness of the interventions?

METHOD

Setting

This study was conducted in an alternative high school located in a metropolitan city in the southeast. The mission of the high school program was to provide an opportunity for students at risk of academic failure (e.g., court involved, teen parents, etc.) to earn a high school diploma. The peer-mediated sessions were held three times a week, for 45-minutes each, in an assigned and structured study hall period created to enhance the reading achievement of struggling readers in the alternative high school. Students were placed in the instructional focus class if they scored less than grade six on the *Test of Adult Basic Education* assessment (Triegs & Clark, 1976). Students were invited to participate in this study if they: (1) were placed in the instructional focus class, (2) had current reading scores between grade levels 4.0 to 7.0 as determined by the *Test of Word Reading Efficiency* (TOWRE: Torgeson, Wagner, & Rashotte, 1999) with a standard score less than 100, and (3) scored between 2.5 to 6.5 on the *Woodcock Johnson-III* (WJ-III: Woodcock, McGrew, & Mather, 2001) reading subtests (word reading fluency, word attack, letter-word identification, and passage comprehension).

Pre- and post-assessments were conducted to determine each participant's oral reading fluency. The TOWRE, four subtests of the WJ-III (letter-word identification, word reading fluency, word attack, and passage comprehension), and the Oral Reading Fluency rate of AIMSweb Assessment were administered to each student by the Principal Investigator.

Participants

Leon was a 16-year old African American male in the ninth grade at the start of the study. He received Special Education services under the category of Specific Learning Disability in reading. On the AIMSweb pretest, Leon scored 53 words correct per minute on grade-leveled passages, and 61 words correct per minute on the TOWRE subtest.

Carl was a 16-year old Latino male in the tenth grade. On the AIMSweb pretest, Carl scored 150 words correct per minute on grade-leveled passages, and 94 words correct per minute on the TOWRE subtest.

Joel was a 17-year old tenth grader who identified himself as of mixed race. During the study, Joel was under evaluation for Special Education services for a Specific Learning Disability. Joel scored 64 words correct per minute on the AIMSweb grade-leveled passages and 56 words correct per minute on the TOWRE subtest.

Toby was a 17-year old Asian male registered in the eleventh grade during the study. Toby scored 130 words correct per minute on the AIMSweb grade-leveled passages and 75 words correct per minute on the TOWRE subtest.

Mrs. Smith, the assigned study hall teacher, participated in this study as a peer-mediation facilitator. Over a period of two weeks Mrs. Smith was trained to facilitate the peer-mediated oral reading fluency instruction by the Principal Investigator. Mrs. Smith was in attendance for all study sessions.

Creating student pairs. To facilitate effective peer-mediated instruction, students were placed into pairs based on their oral reading fluency level established by the oral reading fluency AIMSweb pre-assessments (Shinn & Shinn, 2002). The final oral reading fluency target rate score was used to rank students in the class according to their reading levels. The researcher created pairs by placing a student with a higher reading score with a student with a lower reading score; therefore, two student dyads were created.

Materials

Two books were selected for use during the peer-mediated fluency instructional sessions. The book selection process consisted of compiling a list of narrative text read nationwide in grades 5–7. From that list, the books recommended by the American Library Association, which also were on the school district's approved list of required reading, were selected for use. Only books that the English/Language teacher was not planning to use in the student's other classes during the time of the study were selected.

Passages for both conditions (i.e. repeated reading and continuous reading) were selected from the narrative text for the peer-mediated sessions. Passages of approximately 250 words (Brown-Chidsey, Davis, & Maya, 2003) were taken from chapters of narrative text to be used for the timed reading portion of each session. Readability of each passage was determined by typing each passage as a Microsoft Word (2007) document and conducting a Flesch-Kincaid readability analysis. These analyses yielded a grade level for each document. Each narrative text contained a range of reading levels, for example 2.8–10.2; therefore texts were selected at or immediately above each student's current reading level.

Comprehension was measured through researcher-created worksheets that students completed independently at the end of each session. Students answered four questions: two literal and two inferential. Literal comprehension questions were defined as questions that have answers found directly in the text (e.g., character names, locations, actions that occurred). Inferential questions were defined as those that require the student to add information outside what was provided in the text (e.g., prediction, new vocabulary review).

Dependent Variables and Data Collection

The dependent variables for this study included: (a) words correct per minute (WCPM), (b) number of errors per minute, and (c) number of comprehension questions answered correctly. Words correct per minute were defined as the total words read minus the number of errors made in a one-minute reading. Errors were defined as omissions, substitutions, line skipping, mispro-

nunciations, and non-pronunciations (the student paused, but did not produce a response and the implementer gave the word). Repetitions, self-corrections (within 3 seconds), and insertions were not counted as errors. Comprehension was defined as the percentage of correct answers the student completed for the four comprehension questions.

Procedures for Peer-Mediated Sessions

Baseline condition. During the baseline condition, the 45-minute instructional focus class consisted of individual silent, sustained reading followed by independent completion of a comprehension worksheet. During baseline, the teacher and researcher conducted daily one-minute reading probes at the student's current reading level. Baseline reading probes were leveled passages of narrative text. Students were asked to read only one passage one time for one-minute. The teacher or researcher then provided the students with corrective feedback (total words read, number of errors, and WCPM), and the students graphed their WCPM on their Progress Graph. Immediately following the reading segment each student completed a comprehension worksheet independently.

Once each student presented a stable baseline as indicated by at least three consecutive data points within 50% of the mean (Alberto & Troutman, 2012), each student was paired with another and assigned to begin one of the peer-mediated instruction conditions. Pairs were randomly assigned to one of the fluency strategies (the first pair began with repeated reading, the second pair began with continuous reading) to control for possible effects of starting both pairs with the same condition.

Intervention 1: Peer-mediated instruction with repeated reading (PRR). During the 45-minute peer-mediated fluency instruction with repeated reading condition, two students sat across from each other. One student began reading from the narrative text that had been selected for each pair. Each pair read together during 'pair-reading' time that consisted of 20 minutes at the beginning of the class period. Then, during the 'pair-reading' time, each student took turns whisper reading to each other. To limit the possibility of one student becoming the first reader the majority of the time, the readers took turns being first. While one student read, if an error occurred, the peer-tutor followed the outlined error-correction procedure: "*Stop. That word is _____. What word? Yes, _____. Please read that sentence again.*" Following the 'pair-reading' time, the student reader was given the same passage to read three times, each for one-minute. First the peer-tutor prompted their partner by saying, "*Read this section the best that you can. During your last reading you read 65 words correctly. I will time you and after one minute I will tell you to stop. Do your best reading and try to beat your last score! Ready? Begin.*" After each one-minute reading, the student was provided with corrective feedback from his partner, if necessary, and the WCPM and the number of errors were recorded. The total number of words read cor-

rectly was supplied to the student immediately after each reading. Corrective feedback included a review of the errors made by giving the correct word and having the student repeat the word then re-read the entire sentence, with the error correction procedure “*That word is _____. What word? Yes, _____. Please read that sentence again.*” The students then switched roles and the second reader continued through the above-mentioned steps with a different passage. For each session, the students were given a new passage selected from the narrative text. Each student recorded his own reading fluency progress by graphing his WCPM score. Immediately following the third reading of the second student, each student was given comprehension questions on a worksheet to independently complete. The pairs were monitored, provided corrective feedback, and assistance as needed. The teacher and researcher worked with the students and reviewed each student’s work folder to verify correct data collection.

Intervention 2: Peer-mediated instruction with continuous reading (PCR). During this condition, the above steps were repeated; however, during the passage readings each student in a pair was instructed to read three different passages of narrative text for one minute each.

Intervention 3: The most effective condition. The most effective intervention was determined when one of the two interventions: repeated reading and continuous reading began to show more progress over the other. Once a difference between the interventions had occurred the final phase was conducted with the most effective condition for each participant.

Fidelity

To ensure accurate implementation of the peer-mediated instruction of repeated reading and continuous reading conditions, the researcher and a trained researcher assistant conducted fidelity checks. To calculate the procedural fidelity percentage, the total number of observed implementer behaviors divided by the total number of planned implementer behaviors multiplied by 100. Inter-observer agreement (IOA) was conducted on fidelity for each student as well. For Leon, fidelity checks were conducted for 35% of his total sessions, with fidelity at 88.4% (range, 72.73 to 100); 67% were assessed for IOA with 82.4% of agreement (range, 92.7 to 100). For Carl, fidelity checks were conducted for 33% of his total sessions, with fidelity at 88% (range, 70 to 100); 100% were assessed for IOA with 98.5% of agreement (range, 94.25 to 100). For Joel, fidelity checks were conducted for 35% of his total sessions, with fidelity at 91.36% (range, 63.33 to 96.8); 100% were assessed for IOA with 98.2% of agreement (range, 92.7 to 100). For Toby, fidelity checks were conducted for 45% of his total sessions, with fidelity at 84.3% (range, 71 to 96.78); 67% were assessed for IOA with 98.7% of agreement (range, 95 to 100).

Inter-Observer Agreement

Inter-observer agreements for WCPM and errors, and percentage of comprehension questions answered correctly were conducted. The point-by-point formula was used with the agreements divided by the number of agreements plus number of disagreements multiplied by 100. For Leon, 38% of his total sessions IOA was conducted for WCPM and errors with 97.6% (range, 93.54 to 100) of agreement and comprehension was 100% agreement. With 97.51% agreement (range, 92.4 to 100), IOA was conducted for WCPM and errors for 45% of Carl's total sessions, with comprehension at 100% agreement. With 95.4% agreement (range, 92.42 to 100), IOA was conducted for WCPM and errors for 45% of Joel's sessions, and comprehension was 100% agreement. With 97.89% agreement (range, 95.42 to 100), IOA was conducted for WCPM and errors for 50% of Toby's total sessions, comprehension was 100% agreement.

Results

Leon

Figure 1 shows the WCPM for Leon who was paired with Carl. During baseline, his WCPM $m = 55.25$ (range, 43 to 67). During intervention his WCPM for PRR $m = 79.4$ (range, 69 to 86) and his WCPM for PCR $m = 64.25$ (range, 61 to 66). During the most effective intervention, PRR, Leon's WCPM $m = 80.6$ (range, 55 to 98). From baseline to the most effective intervention, PRR, Leon made a gain m of 25.4 WCPM. Errors across conditions were low and stable while the percentage of comprehension decreased across conditions (see Table 2).

Carl

Figure 2 shows the WCPM for Carl who was paired with Leon. During baseline, his WCPM $m = 156.4$ (range, 148 to 166). During intervention his WCPM for PRR $m = 193.8$ (range, 181 to 236) and his WCPM for PCR $m = 171.2$ (range, 153 to 206). During the most effective intervention, PRR, his WCPM $m = 190.4$ (range, 180 to 217). From baseline to the most effective intervention, PRR, Carl made a gain m of 34 WCPM. Errors across conditions were low and stable while the percentage of comprehension questions answered correctly decreased across conditions (see Table 2).

Figure 1. Leon Words correct per minute

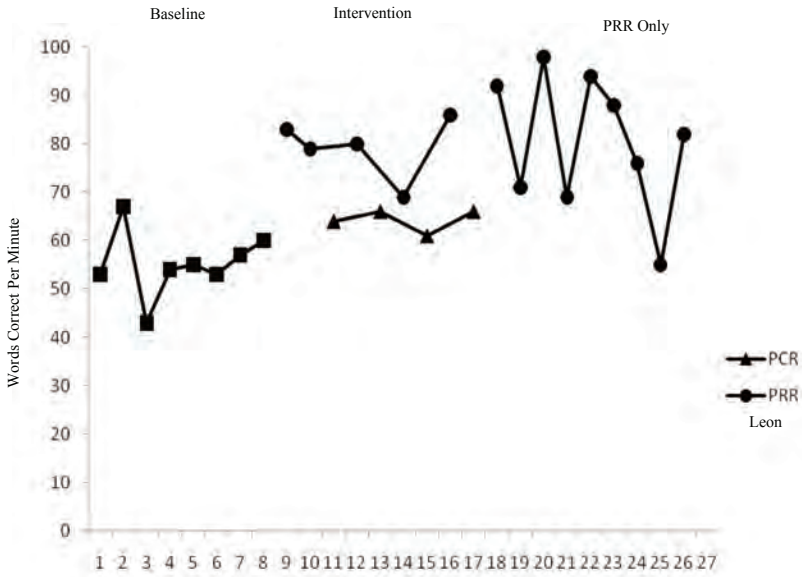
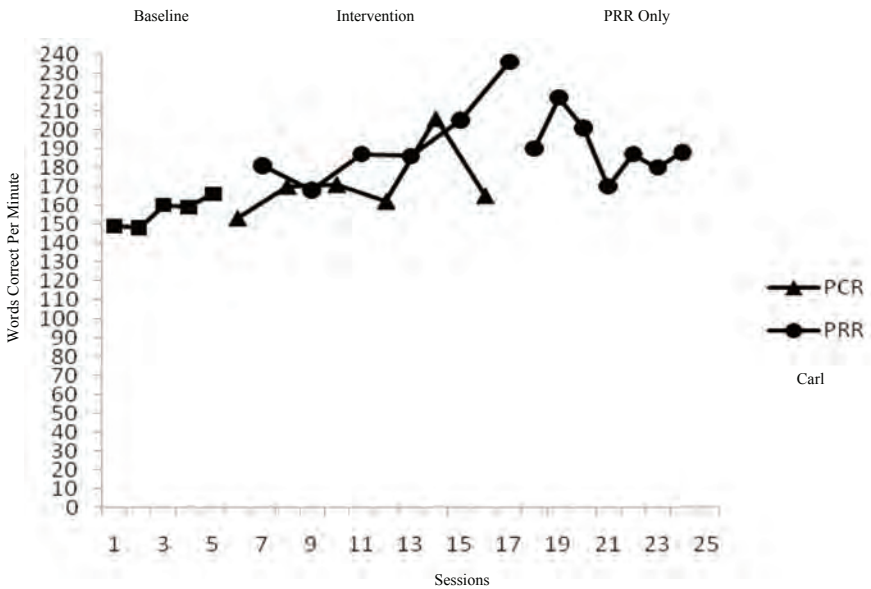


Figure 2. Carl Words correct per minute



Joel

Figure 3 shows the WCPM for Joel who was paired with Toby. During baseline, his WCPM $m = 77$ (range, 66 to 103). During intervention his WCPM for PRR $m = 89.75$ (range, 86 to 87) and his WCPM for PCR $m = 56.75$ (range, 28 to 85). During the most effective intervention, PRR, his WCPM $m = 78.8$ (range, 46 to 92). From baseline to the most effective intervention, PRR, Joel made a gain $m = 1.7$ WCPM, although he had a mean gain of 12.75 WCPM from baseline to PRR for the first condition. Errors across conditions were low and stable while the percentage of correct comprehension questions increased across phases (see Table 2).

Toby

Figure 4 shows the WCPM for Toby who was paired with Joel. During baseline, his WCPM $m = 136.5$ (range, 115 to 163). During intervention his WCPM for PRR $m = 165.5$ (range, 157 to 189) and his WCPM for PCR $m = 148.75$ (range, 124 to 181). During the most effective intervention, PRR, his WCPM $m = 164.5$ (range, 146 to 174). From baseline to the most effective intervention, PRR, Toby made a gain m of 28 WCPM. Errors across conditions were low and stable while the percentage of correct comprehension questions increased across phases (see Table 2).

Figure 3. Joel Words correct per minute

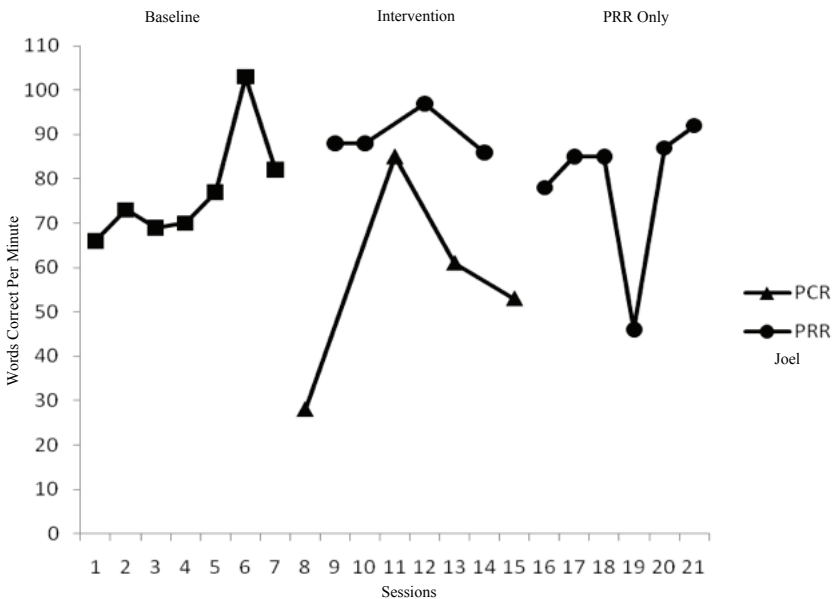
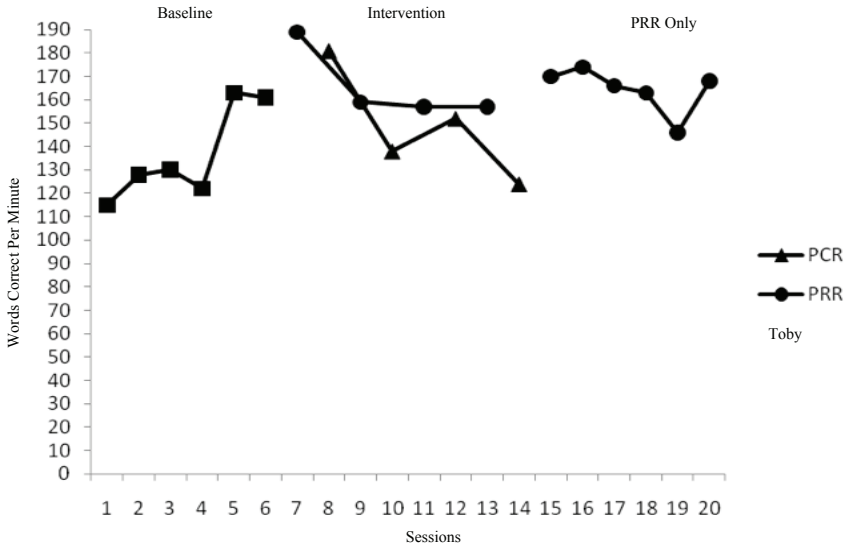


Figure 4. Toby Words correct per minute



To address the perceived effectiveness of the interventions, the study hall teacher answered the Treatment Acceptability Rating Form-Revised (TARF-R: Reimers & Wacker, 1988) specific to peer-mediated instruction and each intervention (PCR and PRR) for each student. Overall, the teacher rated an overall willingness to implement the peer-mediated instructional strategies at 83%, expected effectiveness of peer-mediated instructional strategies at 78%, and the disadvantages for peer-mediated instruction at 66%. With regard to the repeated reading intervention, the teacher rated her overall willingness to implement at 81%, expected effectiveness of repeated reading instruction at 86%, and disadvantages for repeated reading instruction at 65%. The teacher rated her overall willingness to implement the continuous reading intervention at 82%, expected effectiveness of continuous reading at 83%, and disadvantages for continuous reading at 62%. See Table 3 for the specific ratings per student.

Post-assessments were conducted by the Principal Investigator and occurred two weeks after the end of the study. Three out of the four participants (60%) were assessed, as Toby was unavailable. Overall, students decreased on the TOWRE post-assessment. However, increases in WCPM were shown for Leon and Carl on AIMSweb passages. Toby's WCPM on AIMSweb passages remained stable. See Table 1 for specific student data.

Table 1. Participant Demographics

Participant	Leon	Carl	Joel	Toby
Age	16	16	17	17
Gender	M	M	M	M
Grade	9	10	10	11
Ethnicity ¹	AA	Latin	Mixed	Asian
Disability ²	LD (reading)	n/a	n/a	n/a
AIMSweb (Pre/Post) ³	53/69	150/168	64/62	130/ ⁵
TOWRE* (Pre/Post) ⁴	61/69	94/168	56/54	75/ ⁵
Grade Level Percentile	<1 percentile	35 th percentile	<1 percentile	5 th percentile
WJ-III Reading Fluency ⁶	2.6	3.8	3.0	5.0
Word Attack ⁶	5.7	5.5	6.3	6.1
Letter-Word Identification ⁶	6.1	6.0	6.0	6.0
Passage Comprehension ⁶	4.7	4.5	5.4	5.2

Note. 1. Ethnicity: AA = African American; 2. Disability: LD = Learning Disability, Toby was under evaluation for services; 3. AIMSweb: mean WCPM of grade-leveled text; 4. TOWRE Standard Score based on grade level; 5. Toby was not available for post-assessment; 6. WJ-III scores based on grade level equivalents.

Table 2. Mean Percentage of Comprehension Questions Answered Correctly and Errors

Participant	<u>Intervention</u>							
	Baseline		PRR		PCR		PRR Only	
	Comp' Mean (range)	Oral Reading Errors (range)	Comp' Mean (range)	Oral Reading Errors (range)	Comp' Mean (range)	Oral Reading Errors (range)	Comp' Mean (range)	Oral Reading Errors (range)
Leon	56.25% (0 to 75)	3.5 (1 to 6)	25% (0 to 100)	1.33 (0 to 4)	43.75% (0 to 100)	1	34.4% (0 to 100)	2.5 (0 to 5)
Carl	70% (0 to 100)	3 (1 to 4)	37.5% (0 to 75)	0.17 (0 to 1)	41.67% (0 to 75)	0.5 (0 to 3)	37.5% (0 to 75)	1 (0 to 5)
Joel	39.29% (0 to 75)	2.86 (0 to 7)	70% (25 to 100)	2.4 (1 to 4)	68.75% (0 to 100)	1.25 (0 to 3)	70% (25 to 100)	1.6 (1 to 2)
Toby	54.17% (0 to 100)	2.5 (1 to 6)	65% (0 to 100)	0.6 (0 to 2)	68.75% (0 to 100)	1 (0 to 3)	65% (0 to 100)	0.6 (0 to 1)

Note. 1. Comp = percentage of comprehension questions answered correctly and range.

Table 3. Summary of Teacher and Student Acceptability Rating Form-Revised (TARF-R)

	Leon	Carl	Joel	Toby
Peer-Mediated Instruction				
Teacher (Student)				
<i>Willingness</i>	83% (57%)	80% (49%)	83% (40%)	83%*
<i>Effectiveness</i>	89% (71%)	86% (93%)	79% (61%)	79%*
<i>Disadvantages</i>	61% (63%)	69% (78%)	74% (78%)	74%*
Repeated Reading				
<i>Willingness</i>	80% (63%)	83% (60%)	86% (71%)	83%*
<i>Effectiveness</i>	86% (64%)	96% (82%)	89% (75%)	75%*
<i>Disadvantages</i>	55% (53%)	80% (76%)	67% (80%)	63%*
Continuous Reading				
<i>Willingness</i>	80% (63%)	80% (63%)	83% (37%)	91%*
<i>Effectiveness</i>	89% (75%)	86% (86%)	75% (68%)	86%*
<i>Disadvantages</i>	59% (92%)	69% (76%)	59% (71%)	61%*

Note. Toby was not available for social validity assessment

DISCUSSION

Adolescent struggling readers, specifically those with learning disabilities have a myriad of challenges to face in school, especially the successful navigation of the national Common Core Standards. At the secondary level the high school curriculum is based on effective reading skills (Dudley, 2005). Yet, oral reading is not common practice in schools at the high school level. Noting the possible long-term negative consequences of limited reading skills; involvement in the juvenile justice system, low academic achievement, and under-employment (Brunner, 1993), it is imperative that classroom teachers be supplied with research-based supplemental strategies that are specifically geared toward increasing the reading fluency and comprehension skills of adolescent struggling readers. Research in a variety of classroom settings has shown the positive effects of repeated reading (Mercer et al., 2000; O'Connor et al., 2007; Torgesen

et al., 1999; Valleley & Shriver, 2003) and peer-mediated instruction (Yurick, Robinson, Cartledge, Lo, & Evans, 2006) on reading fluency and comprehension skills for a variety of students (e.g., age, ability levels). The current study extends the research-base investigating the effects of viable supplemental reading strategies (i.e., repeated and continuous reading) on the oral reading fluency and comprehension skill deficits of adolescent struggling readers in an alternative high school. The results of the investigation for all participants suggest that the peer-mediated repeated reading (PRR) strategy was most effective in improving oral reading fluency (i.e., WCPM); however, the effects of both strategies on comprehension were mixed.

The PRR fluency strategy was easy to implement within an alternative high school schedule and was perceived as such by the teacher. On average, each session lasted between 40-45 minutes with the students serving as the implementers of the interventions, which allowed the adults in the class time to facilitate overall instruction. The use of PRR also provided individualized instruction on basic fluency skills and comprehension. An additional benefit to using PRR as a supplemental strategy is that it allowed the students to have multiple exposures to grade-leveled, narrative text (Zutell & Rasinski, 2001) and possibly increase reading comprehension skills. Unlike with the PCR, students had the opportunity to re-read the same passage three times, allowing each to become familiar with the words and text structures within the one-minute reading practices. Overall, all the participants increased their WCPM by 21% with the PRR condition when compared with PCR. In addition, oral reading fluency practice using repeated reading might be useful when preparing young adults who struggle with reading for standardized assessments.

Previous researchers have suggested the number of reads within oral reading fluency instruction may play a role in the average mean increase of WCPM (O'Shea, Sindelar, & O'Shea, 1987). In this current study, no matter the condition (PRR or PCR), students read three times. Of interest to the reader, relative to the four students in this study, the largest mean gains were found between the first and second read. For example, Joel's average mean change was an increase of 6.3% between his first and second read, while the average mean change from his second to third read was a decrease of 2.0%. For this particular set of students, only two reads of the passage may be needed to achieve fluency gains. Future researchers should examine the effects of two versus three repeated readings on the oral reading fluency skills of adolescent struggling readers in an alternative high school.

Previous investigators have correlated reading fluency with increases in comprehension (LaBerge & Samuels, 1974); however, in this study, accuracy of comprehension questions was mixed across participants. For example, two students (Joel and Toby) increased their average percentage of accurate compre-

hension questions from baseline to the most effective condition, PRR, and two students (Leon and Carl) decreased their percentage of comprehension questions answered correctly. During each session, students were given four comprehension questions, two literal and two inferential, to independently complete after the peer-mediated intervention was conducted. During the comprehension component of the intervention, students were observed taking varying amounts of time to answer the questions and deficits in writing skills (e.g., writing incomplete sentences, spelling) were apparent upon further examination of their responses to their comprehension questions. The data show that of the total number of questions given, some students performed better for one type. For example, Carl, Joel, and Toby answered more literal questions correctly overall, while Leon responded more accurately to the inferential questions. Future researchers should include a component of peer-mediated fluency that examines the effects of explicit comprehension instruction of literal versus inferential questions for adolescent struggling readers (Roberts, Torgesen, Boardman, & Scammacca, 2008). In addition, older struggling readers may need explicit, direct instruction in the writing process of answering inferential and literal questions, as deficits in the writing skills of these adolescent participants were informally observed. Furthermore, this study did not include components of direct instruction in the areas of decoding, vocabulary, or activating prior knowledge; all shown to impact overall comprehension skills. Students may have exhibited limited growth in comprehension due to a lack of instruction and subsequent practice in these key areas.

CONSIDERATIONS AND FUTURE DIRECTIONS

In this study, all students increased their WCPM during the PRR strategy; however, the generalizability of the conclusions should be cautiously interpreted. First, the student's pre- to post- assessment outcomes were mixed (i.e., TOWRE and AIMSweb). For example, both Carl and Leon showed a decrease in their fluency data on the TOWRE. These decreases in fluency may be due to the timing of the post-assessments and also because there were only nine weeks between pre- and post-testing. The intervention was terminated at the end of the school's second grading period where all students' schedules were changed and new instructional focus classes were formed. At the time of post-assessment, students were pulled from their new schedule and assessed. These new schedules made it difficult to locate students and their willingness to participate in the post-assessment was compromised. Future researchers may want to link scheduling of post-assessments with the school marking period calendar.

Second, the focus of the instructional focus class was varied. For example, this class period was re-conceptualized by the administration to better meet the reading needs of the students. During the class, students were often removed

for testing purposes (i.e., TABE assessments, graduation testing, etc.), random drug screenings, and parole officer visitations. Such removal was a disruption for the students and the study sessions. Since removal from class did not occur during other class periods, future research may be conducted more successfully if done in combination with core subject classes wherein the removal of students may be minimized.

Third, the participation of the students was variable. At times, students did not come to class on time, remained in the hallways with their peers, or delayed initiating portions of the intervention. In the class, there was no reinforcement for on-time arrival or participation as well as no consequences for tardiness. Also, some portions of the intervention (i.e., reading aloud to a peer) were observed to be difficult for some students (i.e., Joel) possibly because engaging in the remedial strategy highlighted their reading difficulties. Future researchers should: (a) include clear behavioral expectations and reinforcement for class participation; (b) align peer-mediated fluency instruction with course requirements and standards, so students may earn credit toward a high school diploma; and (c) provide adult support for those who have difficulty reading with a peer. In addition, the social validity in terms of student willingness to participate in future peer-mediated oral reading fluency interventions was low for most students. Future studies should investigate what aspects of the interventions (e.g., reading aloud, comprehension, working with peers) were viewed as less optimal.

Fourth, the time allotted to this study was within the confines of the existing nine-week grading period. The students in the instructional focus class began the nine-week period reading at an average fourth grade level as well as had long histories of academic failure. Although gains were found in WCPM for all participants, the assigned nine-week period may not be an adequate amount of time to make progress in basic reading (e.g., decrease errors, increase comprehension) for adolescent struggling readers who are several grade levels below their peers (Wexler et al., 2008). Future investigations should consider replicating the use of peer-mediated fluency instruction with narrative text over varying periods of time (e.g., over 15 weeks, the entire school year). The longer exposure to fluency text may be beneficial in assisting the needs of adolescents who struggle with basic reading skills. In addition to the nine-week period, this class only met three times a week for 45-minutes. Since high school curricula are reliant on effective reading skills, a five-day per week schedule may be necessary to promote higher WCPM gains.

In conclusion, based on the findings of this preliminary research and that of other investigators, Peer-mediated reading fluency instruction is an efficient method to increase a student's reading fluency. This study examined the use of PRR and PCR of narrative texts on the reading fluency and comprehension skills of adolescent struggling readers in an alternative high school setting.

The results of this study indicate that PRR appears to be the most effective intervention for these students.

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