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Increasing Fluency in Disabled Middle School Readers: Repeated Reading Utilizing Above Grade Level Reading Passages

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This study examined the effects of repeated reading using above grade-level narrative passages on: (a) reading rate as measured in words per minute (wpm) and (b) reading miscues. A single group, pretest-posttest design was used to measure the treatment effects. The study group consisted of 11, sixth grade African-American students with learning disabilities who received language arts instruction in a self-contained special education setting. A pretest- posttest measurement was conducted using the Flynt-Cooter Reading Inventory for the Classroom to measure reading level and reading rate. The study results suggest that for the classroom teacher, daily, extended use of a repeated reading intervention with above grade level passages may have two positive effects on students with reading disabilities. First, reading rate may increase, meaning that a greater volume of text can be read, enabling a student to read more productively. Secondly, a decrease in reading miscues may also occur, resulting in greater decoding accuracy and aiding comprehension. These two factors may improve overall reading efficiency.

BY THE TIME THEY GET to middle school, they know who they are. When they are called to read, other students become agitated after just a minute or so. Whispers such as “come on” and “hurry up” are accompanied by sighs and moans that can be heard floating across the classroom as tension and anxiety mounts around words that flow too slowly and test the patience of classmates. When their turn is over, the next student picks up reading like a sprinter racing to make up for lost time by the previous slow reader. Meanwhile, the disfluent reader does his best to melt into the anonymity of the classroom, hating reading even more as his personal embarrassment and reading ineptitude is reinforced by another dose of painful, public, round robin reading.

Repeated reading can provide disfluent readers with increased confidence about their reading skills as they watch their reading rate increase. It is this tangible increase in reading skill that can provide such students with hope for future academic success.

Fluency and Repeated Reading

Fluency can be defined as “freedom from word-identification problems that might hinder comprehension in silent reading or the expression of ideas in oral reading” (Harris, 1995). An expansion of this definition comes from Rasinski (2003) who states that fluency involves not only automatic decoding processes, but also the feature of prosody. To read with prosody means to connect the elements of intonation, stress, rate, and rhythm (Schreiber, 1980). The premium on fluent reading rises dramatically in middle school with the increased demands of content area reading. As Rasinski (2000) points out, reading assignments for a disfluent reader take considerably longer and will often end in frustration and an eventual resistance to attempting further assignments. An additional compounding factor in middle school becomes the readability of content area textbooks which are often written above grade level (Paige, 2004) and filled with new and challenging vocabulary, thus presenting an even steeper climb for struggling readers.

The strategy of repeated reading attempts to increase reading rate by using unassisted strategies (Dowhower, 1989) which involve the independent practice of text over multiple readings. Many studies have

shown strong empirical evidence that repeated reading is an effective strategy to increase reading rate (Dowhower, 1987, 1994; Neill, 1979; Samuels, 1979; O'Shea, Sindelar, & O'Shea, 1985; Stanovich, 1990; Schreiber, 1980). In an analysis done by Kuhn (2003), 11 repeated readings studies have used above grade level reading passages (Koch, 1984; O'Shea, Sindelar, & O'Shea, 1987; Van Bon, Bokseveld, Font Freide, & Van den Hurk, 1991) with six of the studies showing increases in the treatment group. More recent work by O'Connor, Bell, Harty, Larkin, Sackor, and Zigmond (2002) explored differences in fluency gains by poor readers in the third to fifth grades. When students with the lowest fluency rates were compared to those with higher rates, the authors found that the former group made greater gains in reading rate with texts that were matched to their instructional reading level while students in the latter group were found to respond equally well to texts at either their instructional level or to texts at their grade reading level.

Therefore, the purpose of this study was to investigate the effect of repeated reading on the reading rate of sixth grade students with reading disabilities using above grade level narrative text.

Method

Setting and Participants

Participants for this study were a single classroom of 11 African-American students, ten of whom were sixth grade students and one in the eighth grade who received instruction for language arts in the special education setting. The mean chronological age of the group was 12-0 years and ranged from 11-3 to 13-8 years. The class consisted of seven males and four females who were from lower to middle class households. The suburban middle school that they attended was part of a large southeastern U.S. school district. The school enrollment was primarily African-American (89%) with 18 percent qualifying for free and/or reduced lunch with the remaining 82 percent best described as middle class. Two of the eleven study participants qualified for free and/or reduced lunch. Ten of the eleven study participants were diagnosed with a non-specific learning disability (LD) and one female participant was diagnosed as mildly mentally retarded. Two of the eleven participants

received all academic classes in the special education setting while the other nine received two or fewer classes in the special education setting. Data from the state-wide reading assessment (See Table 1) taken at the end of the previous academic year showed that the mean standard score for the study group on the assessment was 592, the mean national percentile was 13, and the mean NCE score was 24.

Table 1
Participant NCE Score and Chronological Age

<u>Participant</u>	<u>NCE Score</u>	<u>SS</u>	<u>Percentile</u>	<u>Age (Months)</u>
1	19	593	7	11-10
2	16	510	12	13-08
3	7	549	2	12-11
4	36	614	25	11-11
5	14	579	4	11-07
6	53	660	53	11-03
7	31	622	19	11-07
8	27	612	13	12-01
9	29	617	14	12-00
10	19	593	7	11-11
11	8	559	2	11-05
Group Mean:	24	592	13 th	12-00

(Population mean = 50)

Materials

Six reading passages were prepared from the novel *Number the Stars* (Lowry, 1989), one for each of the six weeks of the intervention. The text was above grade level for ten of the eleven study participants and was purposely chosen for this study based on suggestions in the literature by Kuhn (2000) that passages above grade level may have a positive effect on reading rate when used in conjunction with repeated reading. The text from *Number the Stars* (Lowry, 1989) is graded on Accelerated Reader program criteria at the 5.0 reading level. Passages were selected randomly from throughout the text and were evaluated to match the overall 5.0 reading level of the novel.

Each passage was counted out to 100 words, typed in 14-point font, and then individually printed. The second item prepared was a graph with days of the week (Monday through Friday) along the x-axis and a number scale from 40 to 200 along the y-axis. This graph was prepared so that each daily reading result could be plotted in terms of words-per-minute (wpm), thereby providing a visual reference for the student of their daily progress. Each student had one graph for each week, a total of six for the treatment period.

Measures

A single group, pre-test – post-test (McMillan, 2001) design was used to measure the effect of the repeated reading intervention. In this design, pre-testing of the participant group was followed by the six-week repeated reading intervention after which a post-test was administered to assess change in the dependent variable. Before collecting pre-test data, each participant was measured to determine their individual instructional reading level. Participants were assessed at their instructional level. For example, if a student was administered a level three passage in pre-test, a level three passage was administered in the post-test. Both pre- and post-test oral reading measures were collected using Form A of the Flynt-Cooter Reading Inventory for the Classroom (RIC), (Flynt & Cooter, 2004). From the pre- and post-test passages, a reading rate in words-per-minute (wpm) was calculated. The procedure for determining wpm involved recording miscues as the student read the passage out loud while being timed for one minute. Miscues were subtracted from the “gross” wpm to determine a “net” wpm. This same methodology for wpm calculation was conducted for each day of the repeated reading intervention.

Procedures

Beginning on Monday of each week, the 100-word passage for that week was given to the student. A teacher-assisted oral reading (Rasinski, 2003) was performed by the teacher-researcher which consisted of the passage being read aloud while the student silently followed along with his copy of the text. The student was then asked if there “were any words in the passage that they did not know how to pronounce?” Most students

would then identify one to three words at which point the word would be pronounced again out loud for the student. Often, the student would repeat the word again for correct pronunciation. No student asked for identification of more than three words in a passage.

After reviewing the passage before reading, a timer was then set to count down to zero from one 1-minute and the student was then instructed to begin reading. Student miscues were recorded using a running record procedure (Clay, 1985). At the end of the timed reading, the net wpm was calculated and recorded on the graph and then reviewed with the student.

At this point the student was asked to select a goal in wpm to reach on Friday. This self-selected learner goal was then recorded on the wpm graph for referral as the week progressed. The element of goal self-selection was included to discourage learned helplessness (Alderman, 2004) in which the student attributes failure to a lack of ability and to encourage a mastery orientation, wherein the student views success as being attributable to effort (Dweck & Goetz, 1978). Before the student left the test area, missed words were reviewed with the student. On Tuesday, Wednesday, Thursday, and Friday this procedure was repeated without the assisted reading. The students' progress was reviewed each day so that the student could see where they were in relation to achieving their wpm goal that was set on Monday. After the student finished the repeated reading on Friday and all results were graphed for the week, the results were reviewed once more with the student and compared to the goal set by the student on Monday.

Findings

Weekly Practice Effect

The unit of analysis was each student's wpm score. The Monday wpm score for each of the six week passages was averaged to compute a starting point in terms of a wpm score for each week. The Friday wpm score for each week was averaged to obtain an intervention ending point that could then be compared to the average of Monday wpm scores to provide an intra-week, measure of practice effect for intervention

effectiveness. For the daily reading passages, the study group showed a mean wpm score of 84.6 wpm for Monday readings and a mean wpm score of 116.7 for Friday readings (Table 2). This measure indicates a mean weekly score change of 32.1 wpm for the study group. All participants showed a mean score increase during the study period on this measure. A Pearson correlation was computed for the intra-week practice effect and was found to be .978 and statistically significant at $p < .01$.

Table 2
Mean change in wpm

<u>Participant</u>	<u>Mon WPM</u>	<u>Fri WPM</u>	<u>Change</u>
1	132.0	157.0	25.0
2	65.0	81.0	16.0
3	44.0	69.0	25.0
4	97.0	126.0	29.0
5	57.0	95.0	38.0
6	57.0	84.0	27.0
7	141.0	188.0	47.0
8	43.0	70.0	27.0
9	111.0	148.0	37.0
10	74.0	106.0	32.0
11	110.0	160.0	50.0
Mean:	84.6	116.7	32.1
SD:	35.1	41.3	

Miscue Analysis Data

The unit of analysis for this measure was the number of reading miscues made during each passage. Miscues were averaged for each of the six Monday and Friday passages for the study group (Table 3). The mean number of Monday miscues for the study group was 4.35 while the mean number of Friday miscues was 2.47. The mean change for the study group was a decrease of 1.88 miscues. A Pearson correlation of .838 was found to be statistically significant for miscues at $p < 0.01$. All students in the study group with the exception of two showed a decrease in number of miscues from Monday to Friday during every week of the study period.

Table 3
Mean miscue change

<u>Participant</u>	<u>Mon Miscue</u>	<u>Fri Miscue</u>	<u>Change</u>
1	2.17	1.67	-0.5
2	4.50	3.17	-1.33
3	8.17	5.50	-2.67
4	2.33	1.17	-1.16
5	5.83	3.17	-2.66
6	3.83	2.17	-1.66
7	1.67	0.50	-1.17
8	9.00	3.33	-5.67
9	4.17	3.50	-0.67
10	3.67	1.50	-2.17
11	2.50	1.50	-1.00
Mean:	4.35	2.47	-1.88
SD:	2.42	1.42	

Pre-test and Post-test

The unit of analysis for this measure was wpm. Pre-test and post-test wpm measures from the Flynt-Cooter RIC were 87.6 and 116.3 respectively with standard deviations of 25.9 and 23.3. The pre and post test results are shown in Table 4. This measure reflected an increase in the group mean of 28.7 wpm for pre and post-test outcomes. In the study group, nine of the eleven participants showed an increase in wpm between pre-test and post-test. A paired sample t-test of the pre-test – post-test measures was statistically significant at $p < .017$.

Effect size for the pre-test-post-test outcome was calculated by taking the difference between the two means and then dividing by the standard deviation. This resulted in a large effect size of the repeated reading treatment on the pre-test-post-test measure of .86. Effect sizes were considered to be small (.25), medium (.50), or large (.80), as suggested by Cohen (Huck, 2000). This effect size compares favorably with that of 0.44 as reported by the National Reading Panel (NICHD, 2000) for measures on reading fluency.

Table 4
Pre and Post-test Outcomes (wpm)

<u>Participant</u>	<u>Pretest</u>	<u>Posttest</u>	<u>Change</u>
1	100	130	30
2	105	99	-6
3	58	87	29
4	96	130	34
5	100	80	-20
6	52	109	57
7	130	140	10
8	96	95	-1
9	82	123	41
10	45	146	101
11	100	140	40
Mean:	87.6	116.3	28.7
s:	25.9	23.3	

Discussion

Reading rate

The repeated reading intervention appeared to be effective at improving reading rate as measured by the Flynt-Cooter RIC at pre-test and post-test for sixth grade students with reading disabilities. An intra-week measurement of wpm showed that readers increased their weekly reading rate with the repeated reading strategy.

Growth in reading rate over the course of each weekly period generally increased for the first four days and then would often either slow in growth or stop altogether. This finding concurs with the recommendation of O'Shea (1985) that after the fourth reading 83 percent of fluency increase has been attained. This positive effect on reading rate has important implications for the classroom teacher. As mentioned earlier, middle school teachers spend little time improving fluency in students, although many disabled readers would stand to benefit greatly from such intervention. Recent findings by Rasinski and Padak (2005) suggest that a lack of fluency may have contributed approximately 28 percent of the variance in student achievement tests,

further underscoring the need for increasing fluency in middle school students.

Three of the eleven study participants did not demonstrate an increase in reading rate when measured by the pre-test-post-test instrument. However, all three of these students showed wpm increases for each week of the weekly practice effect. Although the present study is not able to detect the reason for this lack of transfer from the weekly practice to the posttest instrument, two possibilities are proffered. First, it can be speculated that there was little to no word generalization between the intervention passages and the narrative passages of the test instrument. Of course it can be pointed out that this apparently did not affect the other eight study participants. However, these three participants consisted of one student with mild mental retardation and a second who exhibited the most difficulty in the study group with decoding. The third participant exhibited a tendency to repeat sentences when a decoding mistake was made. Although this tendency had partially subsided during the weekly intervention, it returned on the post-test measurement and may have contributed to the lower reading rate. It may also be that the first two participants required a high level of explicit instruction and practice and, as such, did not generalize well new learning to other reading contexts.

A second hypothesis for the lack of gain in reading rate may involve a rapid degradation of the intervention effect. In essence, although a day to day gain was made, the gain may have very quickly diminished or degraded due to processing peculiarities specific to these participants and their processing of the texts. A degree of insight into this is revealed when the reading miscues are analyzed. For one of the students, miscues actually increased between Monday and Friday during two of the six weeks. The second student had the highest number of miscues in the study group. This could indicate that the reading level was too high and therefore inhibited textual transfer.

Miscues

Repeated reading appeared to be effective at reducing reading miscues as measured by daily recording of miscues on running records.

All students showed an overall decrease in reading miscues, although as mentioned earlier, two students had weeks where miscues increased. Reading miscues are related to the ability of the reader to accurately apply decoding strategies. In analyzing participant miscues, several trends appear. First, many of the participants in this study were unable to decode any part of the miscued words. Secondly, students would often read only a familiar first syllable of the word without decoding the second or third syllables, thus misreading the word as a familiar similar, albeit incorrect, word. Thirdly, several readers would often decode the word completely, but part of the decoding, such as a middle syllable would be incorrect.

A fourth area concerns several high frequency “th” words such as that, their, and then which four of the study participants would consistently misread and not be able to correct by the Friday reading. Even with practice, these students continued to misread these words throughout the study. One possible explanation for this is that these words had been impressed incorrectly over time into the reader’s automatic recognition structures and as such, are very difficult to correct. Teachers should keep in mind that the theory of automaticity is a two-way street meaning that if a word can be correctly learned to the point of automaticity, then a word can also be learned incorrectly to the point of automaticity.

An interesting aspect of this study was how participants would improve their reading accuracy. For example, the novel is centered in the culture of Judaism, and as would be expected, some culturally specific words such as Sabbath and Rosen, were not relevant to the study participants and were not decoded correctly by nine of the eleven participants. However, these two particular words, when mispronounced on Monday, were corrected by Friday by all but one of the nine participants. It could be speculated that although these words were unfamiliar to the reader, they contained phonetic structures that were decodable by the student with practice.

In cases involving the participants with the lowest degree of fluency, multiple miscues were made on Monday and Tuesday readings. By Friday however, these miscues were most often reduced by half by

the majority of participants. Although the specific cause of these decreases is difficult to isolate within the parameters of the present study, one possible explanation may involve the repetitive application of decoding strategies known to the student that increased recognition through practice. In students with higher degrees of fluency, the number of Monday miscues was generally three to six and by Friday the miscues had been reduced most often to one and in several cases to none.

The implications found in this miscue analysis seem to be three-fold. First, the results of the present study suggest that repeated reading is an effective strategy to help the disabled reader sharpen decoding skill and decrease miscues through the practice provided by the intervention. Secondly, repeated reading can help the teacher pinpoint specific, reoccurring decoding problems experienced by students and then plan appropriate interventions. Lastly, it appears that certain words are consistently decoded inaccurately by some disabled readers, despite attempts at correct repeated practice. These words may well require targeted interventions by the teacher beyond repeated reading to undo the incorrect decoding by the student.

Motivation Affect

An interesting aspect that emerged from this study was the qualitative affect on the study participants of first choosing, and then working to attain their self-selected weekly wpm goals. While the attribute of goal selection was not quantitatively measured in this study, the affect was evident in participant responses. An example of this response was seen in one respondent who upon achieving his selected goal for the week would pump his fist and display a large grin. Without exception, study participants wanted to know their "score" on Friday. An important aspect to this process was in helping the student interpret their result when they did not meet their pre-selected goal. One particular student who missed her weekly goal was encouraged to consider how much progress she had made by noting the upward direction indicated by her weekly progress graph. Helping this student to view her progress through a mastery orientation of effort equals results appeared to negate the effect of not reaching her goal, as evidenced by her nod of self-satisfaction.

Study Limitations

The results of the present study are limited by the small number of participants, thus constraining the generalizability of the findings. Also, no control group was utilized which presents difficulties in assessing the meaning of the results. No test of the participants was conducted to determine the relationship of the study group to the population of students with learning disabilities specific to reading and no pre- and post-test measures were used to assess reader motivation.

Implications for Further Research

Research (Kuhn, 2003) suggests that when fluency increases so does comprehension. Testing the effects of comprehension in conjunction with repeated reading, particularly over a significant period of time, would provide insight into how increases in reading rate affect comprehension gains. Secondly, a study design involving a control group would help to isolate and identify the specific effects of repeated reading on the variable tested in this study. Deeper study into how strategies that encourage a mastery orientation in disabled readers could provide insight into a very important area of reading, that of reader motivation. Finally, there is still much to be learned regarding optimum treatment protocols (continual or intermittent for example) in the application of repeated reading intervention.

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