Pairing Repeated Reading and Systematic Error Correction: Impact on Fluency of 18 Year Old Students on a Small Caribbean Island

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Abstract: This study investigates the impact of a combined treatment of Systematic Error Correction and Repeated Reading on reading rate and errors for 18 year olds with undiagnosed reading difficulties on a Caribbean Island. In addition to direct daily measures of reading accuracy, the Reading Self Perception Scale was administered to determine whether the intervention was associated with changes in the way the student perceives himself as a reader.

Two characteristics of good readers are reading rate or fluency and accuracy. Reading rate is defined as the number of correctly read words per minute (Manset-Williamson & Nelson, 2005; Samuels, 1997). Reading rate has been linked to successful reading since early research on the psychology of reading and, more recently, to higher levels of comprehension (Chard, Vaughn, & Tyler, 2002; Madelaine & Wheldall, 2004; Manset-Williamson & Nelson, 2005; Nathan & Stanovich, 1991). The automaticity theory states that a fluent reader can decode text without thinking about it, therefore leaving his or her attention free to dedicate to comprehension of the text (Samuels, 1997; Scott & Shearer-Lingo, 2002). As teachers try to meet the mandates of the No Child Left Behind Act (NCLB, 2001), there is even greater need to improve students reading rate and accuracy, particularly since yearly progress is tested often by timed reading tasks followed by multiple choice questions. Research shows that teachers are likely to implement remediation based on what they learned in pre-service training (Boulineau, Fore, Hagen-Burke, & Burke, 2004) and on what is effective and efficient (Gilbert, Williams, & McLaughlin, 1996; Madelaine & Wheldall, 2004; Nelson, Alber, & Gordy, 2004). Because teachers can be effective, efficient, and integrated in the classroom routine, the number of single subject design interventions related to reading in the literature has increased (Barger-Anderson, Domaracki, & Kearney-Vakulick, 2004; Swanson & Sachse-Lee, 2000).

Effective reading instruction can be successfully implemented in the classroom (Clark, 1995; Kuhn & Stahl, 2003). Systematic Error Correction (SEC) and Repeated Readings (RR) are methods that meet the requirements of effectiveness and efficiency. SEC involves the student repeating the correct word as modeled by the teacher following a reading error (Barbetta, Heron, & Heward, 1993; Barbetta, Heward, & Bradley, 1993; Barbetta, Heward, Bradley, & Miller, 1994). RR consists of rereading a short passage of 200 words or less two or more times until the desired degree of fluency is reached (Samuels, 1997). While comprehension may be initially poor, research has shown that the student is better able to comprehend with each additional reading (Nathan & Stanovich, 1991; Samuels, 1997; Strong, Wehby, & Falk, 2004). In his synthesis of research on effective reading interventions, Chard et al. (2002) noted, "In instances where corrective feedback was combined with repeated reading, students were more successful at boosting their fluency, primarily by decreasing their reading errors" (p.404).

However, only one study has combined the methods of SEC and RR (Nelson et al., 2004). This study found a small increase in the number of words read correctly in the SEC phase;

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however, when SEC and RR were combined, a functional relationship in terms of accuracy and proficiency was demonstrated for all four second grade students with disabilities in the study. The present study attempts to extend the Nelson et al. (2004) research by (a) combining SEC and RR and (b) applying the methods to secondary school drop out students with undiagnosed reading difficulties attending a private center on a small Caribbean island. It should be noted, however, that this study can potentially add to the literature in the following ways. First, the break down of time spent with the students is different. Second, each intervention is implemented in isolation and then combined. Third, baseline conditions are repeated after each intervention phase in the study. Fourth, passages are taken from student-selected trade books one level above his current reading level in order to promote scaffolding (Vygotsky, 1978). The reading levels of the trade books were determined using the methods of Fry (1985). It is believed that the students' participation in the selection of the reading is related to a higher level of interest (Clark, 1995). Fifth, the way in which students perceive themselves as readers will be concurrently assessed.

The purpose of this study was to improve reading rate and accuracy from baseline condition and to answer the following research questions: Can a combination of SEC and RR improve the reading rate and accuracy in 18 year old students with undiagnosed reading difficulties? Will a treatment of systematic error correction and repeated reading lead to improvement of the student's self perception in regards to reading as measured by the Reading Self Perception Scale (RSPS [Henk & Melnik, 1995])?

Method

Research Design

A form of the withdrawal design (ABAB) was used for this study in order to compare each subject's performance under each condition. The withdrawal design, also known as a return to baseline conditions, was appropriate for this study since it allowed the tutor to demonstrate whether or not a functional relationship existed between each intervention and each student's performance.

Participants

The participants were 18 year old secondary school drop out students with undiagnosed difficulties in reading attending a non-profit adult educational center on a small Caribbean Island. They were selected by center personnel because they were in need of reading remediation. They signed Florida International University IRB-approved consent forms and agreed to participate in the study as part of their regular tutoring sessions. They are referred to as a student A and B to protect their anonymity.

Definitions

Accuracy of word recognition can be thought of as a component of reading rate. In the present study, accuracy was defined as the number of errors committed in a minute of reading (Samuels, 1997). Errors were defined as mispronunciations, substitutions, and omissions (Hintze, Callahan, Matthews, & Williams, 2002).

Procedure

Prior to baseline, students were administered the RSPS during an interview with the researcher. At this session, a book was selected by the student. The study took place during 10 minute one on one session with the student and researcher each having a copy of the selection. After each session, the researcher and an independent scorer totaled up the number of Correct Words per Minute (CWPM) and errors made during this one minute period using a digital recording device.

Baseline1. Student read aloud a novel passage of about 200 words for five minutes from the selected book. Each time an error was made, the researcher verbally corrected the student but did not instruct student to repeat. After the reading, the student re-read the passage from the beginning for one minute while being recorded.

Intervention/SEC. The student read aloud a novel passage for five minutes. Each time an error was made, the teacher corrected the word, the student repeated the word, and then the student repeated the entire sentence. At the end of the five-minute session, student reread the words read incorrectly, as the teacher pointed to the words. If the word was read incorrectly during this part, the teacher immediately corrected the student and then the student repeated the word. The student then reread the passage from the beginning for one minute.

Baseline 2. The procedures were implemented as described for Baseline 1 Conditions.

Intervention/ RR. Following five minutes of reading, the student reread the entire passage. Then the student read the passage from the beginning for one minute.

Baseline 3. The procedures were implemented as described for Baseline 1 Conditions.

Intervention/SEC+RR. SEC and RR Phases were combined. Student read aloud a passage for five minutes. Each time an error was made, the teacher corrected the word, the student was asked to repeat the word, and then the student repeated the entire sentence. At the end of the five-minute session, the teacher asked the student to reread the words read incorrectly, as the teacher pointed to the words. Next, the student reread the entire passage. Then the student was asked to read the passage from the beginning for one minute.

Baseline 4. The procedures were implemented as described for Baseline 1 Conditions.

Maintenance. Baseline Conditions were repeated once a week for four weeks following the conclusion of the study.

Inter-Rater Agreement

To ensure that measures were reliably obtained, a volunteer assistant not related in any other way to the study was trained to listen to taped sessions with the students and without information on the study condition (i.e., a blind scorer [Strong et al., 2004]). Every session was audio-taped. Inter Observer Agreement (IOA) was calculated by taking the number of agreements and dividing by the number of agreements plus the number of disagreements multiplied by 100. It was found to be 87.5% throughout the study.

Results

Student A

As shown in Figure 1, Student A's CWPM decreased at the introduction of the SEC phase from 28 at Baseline to 27.33; however, the number of errors decreased dramatically from 5.33 to 1.67. The decrease in CWPM rate could be the result of reading more carefully. The next big gain was during the RR phase when he read an average of 44 CWPM and made 2.33 errors per minute. His highest reading rate was recorded during the SEC+RR phase where he read an average of 52 CWPM and made 1.67 average errors per minute.

Student A's initial scores on the RSPS were as follows: in General Perception, 3 out of 5 (Average), Progress a 36 out of 45 (Average to Low), in Observational Comparison a 26 out of 30 (High), Social Feedback a 43 out of 45 (High), and in Physiological State a 30 out of 40 (Average). In the second administration of the RSPS, Student A's scores were slightly higher in 3 categories. in General Perception, he rated himself a 3 out of 5, Progress a 39 out of 45, in Observational Comparison a 27 out of 30, Social Feedback a 42 out of 45, and in Physiological State a 32 out of 40.

Student B

As shown in Figure 2, with the introduction of the SEC phase, Student B increased the number of CWPM from an average of 35.33 in the Baseline 1 phase to 57.67 and decreased errors from an average of 5 to 2.67. The highest CWPM occurred during the RR phase where he scored 78.33 CWPM and 2.33 errors. Student B's scores decreased slightly during the Baseline 3 phase; however, his lowest recorded errors occurred in the SEC+RR phase where he read 77.67 CWPM and an average of 1.33 errors. Assessments obtained one to four weeks after the completion of the study revealed that the gains were maintained. Student B averaged 74.25 CWPM in the maintenance phase and 2.5 errors, showing a marked improvement from the Baseline 1 phase when he averaged 35.33 CWPM and 5 errors.

Student B initially rated himself as a reader with scores that placed him in the Low range in every category of the RSPS. In General Perception, he rated himself a 3 out of 5, Progress a 32 out of 45, in Observational Comparison a 17 out of 30, Social Feedback a 25 out of 45, and in Physiological State a 22 out of 40. In the second administration of the RSPS, Student B consistently rated himself higher as a reader and placed himself within one to two points of the Average range. In General Perception, he rated himself a 4 out of 5, Progress a 38 out of 45, in Observational Comparison a 19 out of 30, Social Feedback a 34 out of 45, and in Physiological State a 28 out of 40.

Conclusion

The data indicate that each student responded with different levels of increased accuracy for each of the interventions. For Student A, the reading tutor can be assured that combining SEC and RR produces the most powerful fluency gains; however, for Student B, RR alone is the intervention that produces the most powerful fluency gains. In this way, the procedure of using a single subject research design allowed the tutor to individualize the instructional session to meet the unique attributes and characteristics of each student. In addition to the performance outcomes, their self-perceptions as readers seemed to change as a function of the increased fluency.

Although the results seem to demonstrate a functional relationship between the interventions and reading rate and accuracy, more research is needed before the results of this study can be generalized. Future research may include more subjects and subjects of various ages, reading levels, backgrounds, and geographical areas. Future research may also focus on the use of SEC and RR methods on groups of students reading aloud in chorus, or on these methods administered by a peer tutor. Further research on the effects these methods related to reading comprehension is warranted. For example, teachers may want to know whether an increase in reading rate alone improves comprehension using repeated readings, or whether systematic error correction alone leads to higher levels of comprehension of text.

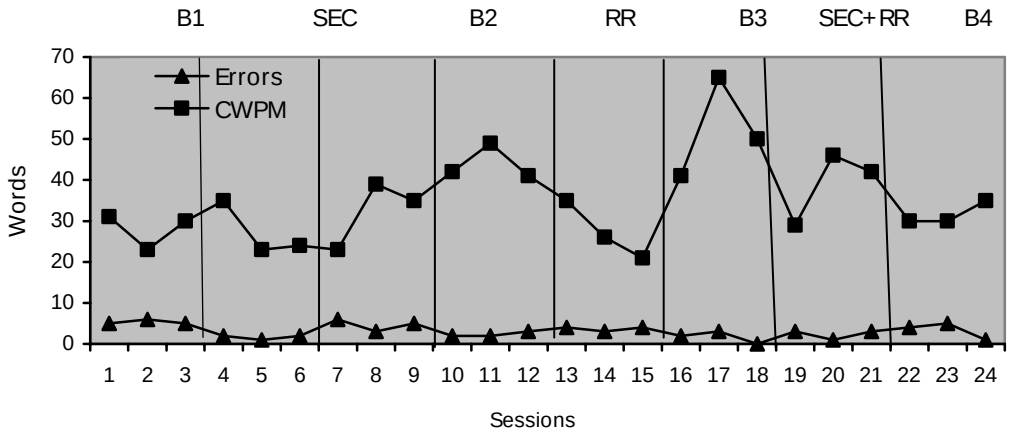

Figure 1: Student A Daily Progress

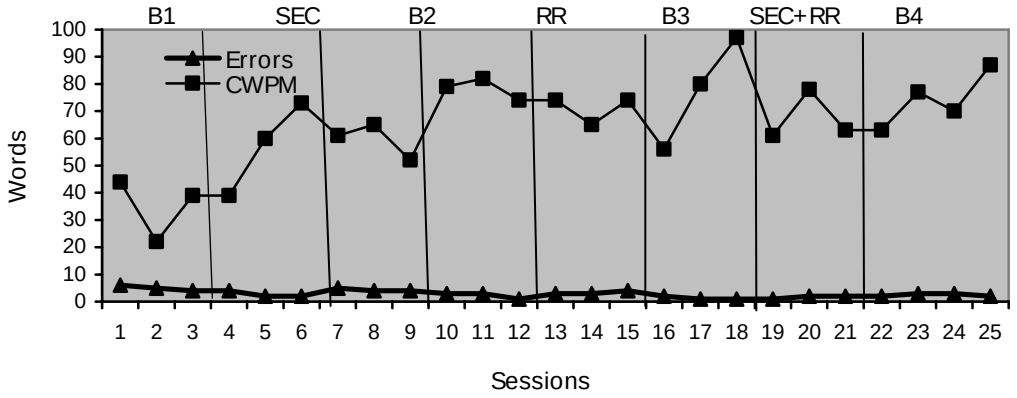

Figure 2: Student B Daily Progress

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