Using Curriculum-Based Assessment and Repeated Practice Instructional Procedures Combined with Daily Goal Setting to Improve Elementary Students Oral Reading Fluency: A Preservice Teacher Training Approach

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This demonstration project evaluates the effectiveness of repeated reading techniques combined with daily goal setting to build oral reading fluency with fourth-grade students. This reading fluency demonstration project was a combined effort of the School of Education at The University of South Dakota with the teachers in the Sioux City Community Schools. This project was designed to address some of the reading needs of students enrolled in one of its elementary schools with a large population of academically at-risk students. Thirty-nine fourth-grade students, from two general education classes, worked with 8 undergraduate practicum tutors from the university. The practicum tutors worked with the students in groups of 1 to 4 for approximately 45 minutes focusing on basic reading skills. The tutors met with their groups two to three days a week on average for approximately five weeks. The experimental design used was an analysis of fluency celerations and learning pictures common to Precision Teaching programs. Precision Teaching measurement procedures were employed to evaluate the repeated readings procedures. Results showed substantial fluency improvements with multiplying learning pictures for oral reading passages. The implementation of these procedures were effective at improving the students' reading fluency, were cost effective in terms of time and resources, and took little time to administer. Implications for classroom instruction and adoption of repeated reading procedures for both students academically at-risk and teacher training are discussed.

DESCRIPTORS: Precision Teaching, reading fluency, repeated reading

Many authorities point out the importance of structured, repeated practice for students to assure proficiency with any skill taught in the classroom (Samuels, 2002). High performance athletes, musicians, artisans, and accomplished writers all understand the importance of prolonged, structured, daily practice routines to assure mastery of the skills required in their profession. In fact, a concert violinist or an accomplished baseball pitcher would not think of playing a formal concert or pitching in a competitive baseball game without ensuring that they engaged in sufficient daily practice to ensure mastery of their instrument or of their fastball. In fact, many adults fondly, and sometimes not so fondly, reminisce about the hours they spent as a youth practicing their flute, drawing sketches of a tree, or practicing their wrist shots in hockey. Most of these adults will also readily acknowledge the importance of these practice opportunities to their ability to excel in a recital, concert, formal art exhibit, or a competitive athletic activity (i.e., game, meet, or race). Unfortunately, as Samuels (2002) points out in relation to fluency development: "Although there is universal recognition that fluency (i.e., practice) is important, too little is done in the classroom to develop this important skill level" (p. 166).

The National Reading Panel (NRP) reaffirmed the importance of practice and fluency building procedures in its final seminal report, Teaching Children to Read (2002). The NRP report not only discussed the importance of daily practice in learning to read the alphabetic and phonemic code as well as building fluency in reading textual material, but it also addressed the need for fluency building procedures based on research

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findings for adequate understand and comprehension of the reading text. Further, the NRP report emphasized the need for regular assessment of reading fluency in the classroom to assure that students are making adequate progress and to assure that if reading problems are exhibited that "timely and effective instructional response" or remediation is implemented to ameliorate said difficulties (p. 7). Even though reading fluency procedures are largely overlooked during regular reading instruction according to Reutzel and Hollingsworth (1993), they are an essential component of good reading instruction. Good reading instruction assures that students not only correctly identify the words within the text but are able to do this decoding automatically, therefore, allowing the student to divert their attention to the meaning of the text rather than concentrating on the sounding out of individual words. Thus, the introduction of fluency building procedures into reading instruction is an essential aspect for good teaching in this area as well as a necessity for improving the reading performance of students in the classroom.

Samuels (1979) advocated for the incorporation of reading fluency (i.e., speed and accuracy) procedures during reading instruction. Unfortunately, as was pointed out earlier, reading quickly and accurately are often overlooked outcomes of good reading instruction. Authorities say that (a) oral fluency is a necessary feature of good reading, (b) readers can acquire fluency with instruction, and (c) fluent reading improves overall reading ability (Howell & Lorson-Howell, 1990; Sweeney, Omness, Janusz, & Cooper, 1992; Teigen, Malanga, & Sweeney, 2001). Fluency is a means for quickly and easily mastering new skills (Lindsley, 1992; Kameenui, Simmons, Baker, Chard, Dickson, Gunn, Smith, Sprick, & Lin, 1998; Sweeney, 1992; Sweeney, Sweeney, & Malanga, 2001). Fluent readers become experts because they are more proficient at incorporating complex skills, assimilating large amounts of content, understanding knowledge structures, and problem representation (Sweeney, 1992; Mastropieri, Leinart, & Scruggs, 1999). In addition, fluency is related to the eventual generalization and maintenance of reading skills (Levy, Nichols, & Kohen, 1993; Max & Caruso, 1998; Sweeney et al., 1992; Teigen et al., 2001).

The purpose of repeated readings is to build fluency (Samuels, 1979; Rashotte & Torgesen, 1985). Three components have been emphasized in research on oral reading fluency: (a) decoding, (b) overall reading speed and accuracy, (c) and the relationship between reading fluency and comprehension. Research documents the effectiveness of reciprocal peer tutoring and a Precision Teaching measurement system with repeated readings to improve the reading fluency of elementary and severe behavior handicapped learners (Dowhower, 1989; Downs & Morin, 1990; Daly & Guldsowg, 1992; Lee, 1990; Sweeney, 1992; Sweeney et al., 1992; Teigen et al., 2001). Additional research on potential classroom applications of repeated readings reaffirm the robust nature of this instructional method (Bolich & Sweeney, 1996; Durgunoglu, Mir, & Arino-Marti, 1993; Homan, Klesuis, & Hite, 1993; Sweeney et al, 1992).

For example, Teigen et al. (2001) implemented a combined repeated readings procedure with an error correction package to improve the reading performance of a 10-year-old boy who was participating in a summer reading clinic. The combination of the repeated readings and the error correction procedures was successful at increasing the number of words read correctly while simultaneously decreasing the words read incorrectly across a 10 day instructional period. Additionally, Sweeney et al. (1992) showed that repeated readings combined with Precision Teaching measurement approaches were responsible for the reading improvements of a 43-year-old male who was diagnosed as functionally illiterate. Not only did the repeated readings improve his ability to read and understand textual material, but the reading instruction was also responsible for his reported improvement in self-confidence as it related to reading tasks. Further, repeated readings were successfully implemented on a classwide basis with third- and fourth-grade students while working with undergraduate tutors from a local university (Robbins, Sweeney, Ring, & Sweeney, 1999).

Although the focus of this project was to improve the reading performance of the students with mild disabilities who were in an inclusive setting, the results indicated improvements in oral reading fluency all of the students in the classroom. The importance of this study was that repeated readings and fluency building procedures are effective for improving reading performance regardless of whether a student is experiencing reading difficulties or are already reading at appropriate levels. Thus, teachers who incorporate repeated reading procedures and fluency building strategies as a component of their reading instruction are going to improve the reading skills of students who are exhibiting reading difficulties, while enhancing the reading performance of those students who are achieving adequately in the classroom. One of the important difficulties in the integration of repeated reading procedures is the need to ensure effectiveness of the fluency building strate-
Integrating Precision Teaching measurement systems with repeated readings instruction as a method to build reading fluency is frequently advocated by authorities in the area of curriculum-based measurement (Binder, 1990) and curriculum-based assessment (Sweeney, Ring, Robbins, Larsen, & Schnetzer, 1998). Precision Teaching measurement provides a frequency of responses over time and across days as its measurement unit. For example, a teacher can count the number of words read correctly or incorrectly and divide that number by the time allocated for assessment (e.g., one-minute) and come up with a count per minute measure. This count per minute measure is then charted on the Standard Celeration Chart across a series of days, thus providing the teacher with a quantifiable visual analysis mechanism that is sensitive to daily changes in reading performance. The teacher then possesses the information necessary to determine the effectiveness of the strategies, curriculum, and time required to improve a student’s reading performance. Likewise, if the data from the chart indicates deteriorating or stagnate performance, the teacher possesses the immediate feedback from the student’s performance that suggest that changes, modifications, or accommodations in the instruction are required. Precision Teaching measurement approaches provide the teacher with a powerful tool for assessing student’s reading performance as well as providing a feedback mechanism to ensure the effectiveness and appropriateness of the instruction.

Research shows that the immediacy and frequency of teacher delivered feedback, such as that provided by Precision Teaching measurement approaches, is functionally related to improvements in students’ academic achievement (Cooper, Heron, & Heward, 1990; Van Houten, 1980). Public posting systems are one measurably effective means that are recommended to assist teachers in providing students with effective and meaningful feedback on their classroom reading performance (Lambert, Sweeney, & McLaughlin, 1996). An important component of many public posting systems is academic goal setting or setting instructional aims. Unfortunately, few studies or projects have appeared in the literature over the past 10 years documenting the effectiveness of daily goal setting for the improvement of reading fluency skills in the classroom.

Cooper, Kubina, and Malanga (1998) provided a set of guidelines for chart collections or frequency collections by teachers as a means of displaying individual student performance on the Standard Celeration Chart for the purposes of summative evaluation. Although integrating repeated readings and daily goal setting combined with Precision Teaching measurement approaches was shown as an effective means of improving student’s oral reading fluency (Robbins et al., 1999), few recent articles in the literature display classwide summaries of improvements in reading fluency. Even though the monitoring of individual reading performance is at the heart of Precision Teaching, an important gap appears to exist in relationship to displaying a visual summary analysis of classwide improvements in reading fluency performance.

Purpose. This demonstration project evaluated the effectiveness of repeated reading techniques on oral reading fluency for students academically at-risk on a classwide basis. A concurrent goal of this demonstration was to document the importance and effectiveness of integrating procedures for daily goal setting, as part of an overall treatment package, for assisting students at improving their reading skills. Finally, this demonstration project shows the efficacy of using chart collections as a means of summative, classwide evaluation of the reading fluency instruction.

METHOD

Participants. Thirty-nine fourth-grade students, from two general education classes, worked with 8 practicum tutors from the university. The practicum tutors worked with the students in groups of 1 to 4 for approximately 45 minutes focusing on basic reading skills. Over half of the students from both of these classes had been identified with reading problems and were enrolled in classes for students in special education, English as a Second Language, or Title 1 reading. Further, the classroom teachers identified several students that were not currently enrolled in these remedial programs who were at-risk for academic problems due to social behavior, attendance, or other behavioral concerns.

Setting. This demonstration project took place at Smith Elementary School in Sioux City, Iowa during the spring of 2002. The school that participated in this project is located in a racially and ethnically diverse section of the community. Roughly 61% of the students come from minority backgrounds (i.e., Hispanic, Native American, African American, Vietnamese, etc.) with an unusually high percentage enrolled in English as Second Language programs. Based upon the school district’s measure of socio-economic status (i.e., free or reduced school lunch programs), close to 68% of the students could be considered from economically deprived backgrounds (i.e., below what could be considered the poverty line).

Two integrated classrooms of students took
part in a combined repeated readings and goal setting instructional intervention. The repeated readings were conducted in the students' respective classrooms or in the hallway adjacent to the classrooms. Tutors utilized the hallway because of limited space for the small groups and to eliminate as many auditory distractions as possible. Students from these classes worked in groups of 1 to 4 students with trained undergraduate special education practicum tutors. A university supervisor and the classroom teachers served as mentors/coaches for the practicum tutors. These tutors used a combined repeated reading procedure with daily goal setting as well as Precision Teaching evaluation approaches to document the students' progress at building oral reading fluency. The practicum tutors sat across or perpendicular to the students in their respective tutoring groups.

Movement Cycle/Movement Procedure. The movement cycle for oral reading was the number of words orally read during an one-minute timing. The learning channels for oral reading were see/say (see word/say word). The corrects were the number of words read correctly during the one-minute timing. The incorrects were the number of words read incorrectly (i.e., omissions, substitutions, additions, and mispronunciations) during the same period.

The practicum tutor provided a retelling procedure for the student following oral reading timings. The retelling consisted of a free recall for the student in which they would tell all the information and details that they could remember from the reading passage. During the oral retell, the tutors counted key points related to the characters, facts, and specific action verbs from the passage. Although the oral retells were counted, recorded, and charted, they are presented in this article due to space limitations.

PROCEDURE

General Procedures. Prior to the beginning of the instruction, the classroom teacher filled out a brief survey on each student providing an approximation of the students' overall reading level, vocabulary and sight word recognition level, decoding problems, and any other information necessary to help the practicum tutor get started with instruction. Based upon this information the practicum tutor selected three reading passages of approximately 150 to 220 words in length (one passage below the reported reading level, one passage at the reported reading level, and one passage slightly above the reported reading level). These three passages were used during the initial assessment to determine the most appropriate passage for instruction using the repeated reading procedure. Additional curriculum-based measures were taken during the initial tutoring session to get a better understanding of each student's sight word recognition skills, decoding skills, and response patterns, and structural analysis skills.

After the initial assessment, the practicum tutor selected the passage he or she believed would challenge the student but could also be used to improve their oral reading fluency. Instruction consisted of a variety of different decoding, sight word recognition, and reading exercises (e.g., paired readings, neurological impress, chained reading, and specific error correction), which culminated with a one-minute timing for oral fluency on the selected passages. After the repeated readings timing, the practicum tutor conducted an one-minute retelling comprehension probe.

Goal Setting. The practicum tutor selected the most appropriate passage (i.e., approximately 150 to 220 words) from the initial oral reading fluency assessment. Prior to the timing, the tutor asked the student what his previous best score was and then asked the student what his goal was for today's reading fluency timing. The practicum tutor prompted and cued the students during the goal setting to ensure that they were selecting a reasonable goal for their repeated readings one-minute timing. A minimum improvement goal from the last session of at least one more word per minute was used during the goal setting procedures. Maximum improvement goals were based upon the tutor's judgment of what was a reasonable goal for the students' to attain, thus ensuring continued intermittent success towards the ultimate fluency aim range of between 180 to 210 correctly read words orally per minute. At the conclusion of the repeated readings, the practicum tutor and the student(s) reviewed, recorded, and charted their best repeated readings score from the day. The tutors celebrated the student(s) accomplishments by rewarding them with stickers or other tokens when they met or exceeded their daily reading goals. The chart and daily goal setting provided an important source of feedback related to the student(s) success in meeting their ultimate instructional aim of reading 180 to 210 words per minute on a selected reading passage (Liberty, 1972; Liberty, 1975; McGreevey, 1983; White & Liberty, 1976).

Repeated Readings. The practicum tutors began the fluency training by reviewing the passage with the student prior to implementing the one-minute repeated readings time trial. During this review, the tutor corrected any errors and provided additional instruction on portions of the passage that appeared especially difficult for the
student to master. When the tutor believed that the student reviewed the passage sufficiently and was ready for the one-minute timing, she/or he cued the student to get ready for their repeated reading timing. The tutor set his/her digital countdown watch (or kitchen timer) for one minute. Then the tutor provided a specific cue, such as "Ready? Five seconds, Go!", to let the student know when to start reading. While the student read out loud, the instructor followed the passage on his/her own sheet marking any errors that needed to be corrected following the one-minute timing. Previously, the tutor told the student to read out loud as fast as he/she could and if he/she did not know a word to skip it and go on to the next word. When the beeper of the watch sounded the student stopped reading. Following the conclusion of the one-minute timing, the practicum tutor recorded the data and corrected any errors, and the student determined if he/she met the goal. Often during the daily goal setting analysis, the student requested another repeated readings timing to try and better his/her current daily score. Additional timings were encouraged when time permitted, and the student’s best score for the day was counted, recorded, and charted. Finally during the daily goal setting portion of the instruction, the practicum tutor rewarded the student for meeting the intermittent reading goal and helped the student to select new goals for the next instructional session.

RESULTS

Data from the students' summary charts collections (see Charts 1-6) showed substantial improvements in all of the students' oral reading fluency performance through the use of repeated readings and goal setting procedures across multiple reading passages. The upward celerations that related to the increasing number of correctly read words were indicative of climb learning pictures for the students. Also, many of the students exhibited periodic celerations related to incorrectly read words during the one-minute timing on individual students. Charts 7-9 display the individual performance of three students across multiple reading passages. The data indicated accelerating data paths for the number of words read correctly as well as celerations below the record floor creating data or celerations below the record floor related to incorrectly read words during the one-minute timings.

DISCUSSION

This study has remained consistent with previous research involving repeated readings for the development of oral reading fluency (Biemiller, 1977; Dowhower, 1987; O'Shea, Sendaie & O'Shea, 1985; Robbins et al., 1999, Sweeney, 1992; Sweeney et al., 1992). Although it can not be said that daily goal setting was solely responsible for the improvements of these students in the area of oral reading fluency, it can be said that the daily goal setting package which was responsible for these reading improvements. Comments made by the elementary students and the affective enthusiasm showed by these students about both their tutors and the successful performance that they exhibited further exemplify the importance of this project for the students who participated. In fact, these same elementary students asked the first author, months after the completion of the project, when the university tutors were returning to work with them. From a teacher training perspective, this demonstration project provided an excellent opportunity for undergraduate practicum tutors to gain valuable instructional and curriculum-based assessment opportunities in a structured, highly supervised, real world setting. The relatively simple to follow instructional strategies and the straightforward Precision Teaching evaluation system provided the undergraduate tutors the basic instructional foundations for success when working with students with disabilities or who were academically at-risk. In fact, comments made from graduating students teachers, who had completed a similar experience two to three years before, reported that the tutoring practicum was largely responsible for their understanding and
Table 1

<table>
<thead>
<tr>
<th>Passage #1</th>
<th>Raven</th>
<th>Grayson</th>
<th>Geoffrey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celer. Corrects</td>
<td>X 1.5</td>
<td>X 3.5</td>
<td>X 2.0</td>
</tr>
<tr>
<td>Celer. Incorrects</td>
<td>+ 5.0</td>
<td>+ 25.0</td>
<td>Below 5</td>
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<tr>
<td>Passage #2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Celer. Corrects</td>
<td>X 1.6</td>
<td>X 5.0</td>
<td>X 2.5</td>
</tr>
<tr>
<td>Celer. Incorrects</td>
<td>+ 6.0</td>
<td>+ 60.0</td>
<td>X 9.0</td>
</tr>
<tr>
<td>Passage #3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Celer. Corrects</td>
<td></td>
<td>X 1.4</td>
<td>X 1.8</td>
</tr>
<tr>
<td>Celer. Incorrects</td>
<td></td>
<td>+ 7.0</td>
<td>+ 2.8</td>
</tr>
<tr>
<td>Passage #4</td>
<td></td>
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<tr>
<td>Celer. Corrects</td>
<td></td>
<td>At Aim</td>
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<td>Celer. Incorrects</td>
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<td>Below 5</td>
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<td>Passage #5</td>
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<tr>
<td>Celer. Corrects</td>
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<td>At Aim</td>
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<td>Below 5</td>
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<td>Passage #6</td>
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<tr>
<td>Celer. Corrects</td>
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<td>Celer. Incorrects</td>
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integration of specific curriculum, instructional materials, and strategies as they progressed through their teacher preparation program. In short, the opportunity to employ these procedures with real students in a supervised setting assisted these practicum tutors to gain a greater master and fluency of important instructional teaching behaviors.

Several important limitations need to be considered when evaluating the results of this study. First, the demonstration project met on average twice a week for only 5 weeks. Had the practicum tutors been able to continue the intensive tutoring for a longer period of time, such as a year, it is probable that much more substantial results may have been obtained. Secondly, the tutors worked in small groups of 2 to 3 students. Working intensively, with highly trained tutors, in small groups is often not practical or feasible for most general education teachers. Additional training and support may enable these teachers to develop peer tutoring or cooperative grouping strategies that could adopt or modify these fluency building and daily goal setting strategies in the regular classroom (Maheady, Michielli-Pendl, Mallette, & Harper, 2002; Smith, Tyler, Easterling, Smith-Davis, Clarke, & Mims, 2002). Unfortunately, training in developing peer tutoring or cooperative grouping strategies are too often only the auspices of those in special education and are not contained or satisfactorily taught in general education teacher training programs (Greenwood & Maheady, 1997). Further, by utilizing summary chart collections as a potential decision making tool, practitioners run the risk of masking or inadvertently missing the fine grained nuances of individual daily performance by students related to improvements or potential deterioration of oral reading fluency. If summary chart collections are employed as the sole decision making tool by teachers and other educational leaders, without an additional analysis of the individual student's performance, they must interpret these results with caution due to the same threat posed by statistical analysis, i.e., masking the true variability across time of the individual student's reading performance (Johnston & Pennypacker, 1993). Educational practitioners need to combine the analysis of both the summary chart collections with a thorough analysis of individual student’s
charts to avoid making erroneous conclusion related to the effective reading fluency instruction on student's actual reading performance. Finally, further research needs to be conducted related to long term gains of reading fluency instruction, generalization of fluency skills into other curriculum areas, and ways to increase adoption and implementation of fluency building and goal setting procedures by more classroom teachers.

Repeated readings and oral reading fluency procedures hold great promise for improving the overall reading performance of many students. Through the adoption of repeated reading and fluency building approaches, teachers are providing students with the tools so that they can automatically recognize and decode words within the text. When students are able to automatically decode words with in a text, they are provided with a greater opportunity to focus more of their time, attention, and effort in developing adequate reading comprehension skills (Allington, 1977; LaBerge & Samuels, 1974). Although the outcomes of this project for building reading fluency with elementary students are very promising, additional planning and resources are necessary for implementation on a classwide or school wide basis. Through effective collaboration between the local public schools and universities, the opportunity to increase available resources for instructional purposes may be realized. Further, the actual in school teaching experience in a structured and supervised setting provides invaluable experience for preservice teachers and optimizes feedback and resources related to effective instructional practices provided by teacher training programs.

REFERENCES


