The Effects of Repeated Reading Instruction on Oral Reading Fluency: A Study of a Technology Intervention

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May 2012
Abstract

The purpose of the following study was to investigate the effectiveness of repeated reading instruction on the oral reading fluency of first grade students. The study also researched the effectiveness of technology as a repeated reading intervention to assist with oral reading fluency. The technology used was repeated voice recordings on Ipod touches. The students read passages at their independent reading level, and recorded each of the repeated readings onto the Ipods. During playback of their voices, they listened for characteristics of good readers. On the following readings of the same passage, they tried to improve their own oral reading fluency skills. This process occurred for three days in a small-group setting, following a whole-group core reading lesson. After receiving the repeated reading intervention using the Ipod touches, students demonstrated increased oral reading fluency. Therefore, findings in this study support the use of technology as a repeated reading intervention.

Keywords: Oral reading fluency, reading instruction, technology, repeated reading
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Educators agree that literacy is the point at which learning begins. “The development of basic literacy skills has been identified as the single, most important skill for school-aged achievement and ensuring post-secondary educational opportunities (Lyon 1996)” (Eckert, Dunn, & Ardoin, 2006, p. 149). A positive relationship between early reading problems and later academic success has been indicated in many studies. Reading is a necessary skill and a great predictor of overall success in school and life itself. Early elementary reading instruction should focus on phonics, phonemic awareness, fluency, comprehension, and vocabulary. Of all of these early instructional skills, oral reading fluency seems to be the one on the radar of many educators and interventionists who are discussing effective reading strategies. One study indicated that “the National Reading Panel delineated reading fluency as one of the five critical reading skill components and defined it as the ability to “read text with speed, accuracy, and proper expression” (NICHD, 2000, p. 3-1)” (Lo, Cooke, & Starling, 2011, p. 115). Fluency is made up of three parts: accuracy, automaticity, and prosody. The first of these three parts, accuracy, is correct word identification and decoding with minimal errors. “Good readers read with accuracy almost all the time” (Eckert, Dunn, & Ardoin, 2006, p.11). When students are reading accurately, they are strengthening their word-analysis and decoding skills as well as their ability to decode. Wise et. al. states that automaticity is the immediate recognition of words that bypass the decoding process (2010). During this process the reader uses as little mental effort as possible to decode so they can put more effort into making sense of the meaning in the text. “Proponents of instruction in reading fluency point to the importance of automaticity, the ability to decode words quickly and effortlessly” (Com, 2006, p. 74). Although automaticity is an important aspect of reading fluency, fluency is not just about speed, it is also about expression. Prosody is the ability to demonstrate the implied expression of the text being read. Without making note of the punctuation and providing adequate expression, meaning of the literature is lost. In short, students need to hear what fluent reading sounds like. By simply listening to an adult model fluent reading skills, the students' own fluency skills will improve. As a student becomes a fluent reader, decoding becomes routine and they are able to pay attention and comprehend the text. Therefore, “…fluency serves as a bridge between decoding and comprehension” (Conderman & Strobel, 2008, p. 15).

Review of Literature

The development of oral reading fluency is a complex and gradually changing skill. “In the case of young children, fluency is a relative phenomenon, expected to increase as children gain competence. Thus, it is important to understand factors that continue to explain growth in this skill” (Speece & Ritchey, 2005, p. 388). According to Begeny, Krouse, Ross & Mitchell (2009), “Although reading fluency is one of the five essential early-reading skills students must develop, many elementary-aged students in the United States do not read age-appropriate material fluently” (p. 211). Students who struggle with reading expect to fail. When children fail at reading, early in their schooling, they begin to dislike it, and due to this dislike, they have less reading experiences. Some students who end up being defined as “at risk” readers and do not attain the basic skills necessary for reading, will continue to be nonfluent readers and will fall behind throughout their educational careers. “Their oral reading is choppy and plodding. These readers focus their attention primarily on decoding individual words. Therefore, they have little attention for comprehending the text” (Conderman & Strobel, 2008, p. 15). Early identification and intervention of basic reading skills is the most effective way to assist these struggling
students. Lower primary grades, like first grade, are detrimental in development of reading competency. This is where they are introduced to and practice many of the literacy skills like decoding and sight words. Reading instruction should be systematic and explicit and focus on phonics, phonemic awareness, vocabulary, fluency, and comprehension. Researchers suggest that fluency development be incorporated as soon as possible in the reading curriculum. “...Fluency should be a central part of any reading program” (Conderman & Strobel, 2008, p. 15). Teachers must also ensure that students are engaged in ample time of actual text reading to encourage this fluency practice. This focused reading practice of skills and strategies will aid their progress toward being a more proficient and fluent reader for the future.

“One line of defense against reading failure for these students at-risk is quality classroom education” (Campbell, Helf, & Cooke, 2008, p. 268). Administrators and teachers must assist each other in identifying, implementing, and evaluating effective reading interventions. Eckert, Dunn, & Ardoin (2006) point out in their research that there is a number of school-based intervention programs that have proven to be effective in the area of oral reading fluency. These interventions are classified by Eckert, Dunn, & Ardoin as skill-based and performance-based. Skill-based interventions include sight word drills, passage preview, and repeated readings. These interventions are considered skill-based because they involve some kind of reading skill instruction. On the other hand, performance-based interventions incorporate some type of a reward, consequence, or verbal praise and feedback depending on the reading behavior. This study will be comparing three skill-based repeated reading interventions. Interventionists need to use effective research-based practices as well as efficiently monitoring the progress of each student. For this reason the study will also include the use of performance-based intervention in the form of immediate student feedback.

Much research data has proven repeated reading strategies to be a positive, effective intervention for oral reading fluency. Lo, Cooke, & Starling (2011) define repeated reading as typically involving a student rereading a specific passage out loud multiple times to a teacher or peer tutor. Students who have difficulty in fluency skills, for example automaticity and prosody, benefit greatly from repeated readings. “Rereading allows them to practice the skills and strategies they have been learning while developing fluency and comprehension” (Fowler, 1998, p. 11). Conderman & Strobel (2008) point out that “… students learn to listen to themselves read while reading aloud or chorally, which is an important metacognitive skill not usually developed in students with reading difficulties” (p. 15). Rereading of texts leads to greater fluency because it helps to improve decoding, reading rate, and prosodic reading. All repeated reading instruction should include the following three important components: students reading passages out loud to an interventionist or peer tutor, students continuing to reread the text until performance criterion is reached, and students receiving immediate corrective feedback. These essential repeated reading intervention components will ensure an effective experience for students. A preferred type of text for students during repeated readings is performance passages. Performance passages include poetry, riddles, jokes, scripts, and dialogues. Repeated reading texts should be relatively short and contain a complete idea or story. Researchers, Conderman & Strobel (2008), suggest that a first grade passage should include 53-66 words, second grade should include 89-111 words, third grade should include 107-133, and fourth grade passages should include 123-153 words. They state that these passages should be read about four times before the student is allowed to advance to the next. Some
research suggests to move the student on to the next reading passage after three successive improvements. Specific corrective comments and feedback should be offered by the interventionist or peer tutor when the students performs a miscue during oral reading. Providing the reader with this information has been shown in research to have a great effect on oral reading performance and fluency.

Educators have studied several methods of implementing repeated reading programs into their classrooms. A few of these interventions include readers theater, assisted reading, passage preview, multisensory, peer-coaching, small-group instruction, as well as technology components. “Despite the various distinct procedures, effective repeated reading interventions are most often implemented as a part of a multifaceted treatment package that includes several essential, interconnected components” (Lo, Cooke, & Starling, 2011, p. 116). One of the essential components is a strong core taught by all educators with fidelity. In the following study, this will be a constant in the package provide to the students in the study. The area being tested will be the addition of three different repeated reading interventions: teacher led small-groups, technology, and peer-coaching.

The first of three repeated reading interventions to be implemented in this study to improve oral reading fluency is teacher led small-groups. Teachers can facilitate prevention of reading difficulties by decreasing the size of instructional groups and spending more time individually focusing on deficient skills of those students. Small-group instruction is one approach to assist students with similar needs. During small-groups, the interventionist can implement fast or slow paced, interactive, explicit instruction with continual review and practice of key skills with material focusing on fluency. A key component to an effective small-group intervention is assessing them frequently, moving the students as necessary, and adjusting the material to fit the needs of the specific groups.

The next intervention for implementation is the use of peer-coaching. In a research study conducted by Marr, Algozzine, Kavel, & Keller Dugan (2010), they concluded that peer mediated learning groups are powerful academic interventions that can prevent and/or remediate reading failure before it leads to even more devastating outcomes. During a peer-coaching strategy, the educator will first pair students up in heterogeneous groups. The peer-coach (more advanced reader) may first model expressive reading and then include the student in a choral or unison reading. The passage that is read multiple times is usually connected to the reading core curriculum lesson or some sort of instructional lesson, but is at an independent level for the student. During or after the oral reading, the peer-coach will provide corrective feedback and then the pair will record, on a chart, the number of correctly read words per minute read by the student. Marr, Algozzine, Kavel, & Keller Dugan (2010) suggest certain elements to be incorporated in peer-coaching for success. These elements are modeling fluent reading for the student, providing support and feedback with difficult words, providing opportunities to read a text more than once to gain confidence, charting student progress, and identifying a target the student needs to achieve. The results of their study showed that the implementation of peer-coaching increased the oral reading fluency of the participants. “They also enjoyed working with a peer and celebrating improvements and growth in their oral reading fluency” (Marr, Algozzine, Kavel, Keller Dugan, 2010, p. 85).

The final implemented strategy for this study will be the use of technology. Helping non-fluent students to catch up is very important and extremely difficult. The use of technology is a modern, and fun way of catching the students’ attention and giving them focused practice on difficult skills. Technology is effective for many reasons but the most essential benefits for this study are its adaptability, facilitation of repetitive practice, and motivation for the students.
Hasselbring (2012) states that adaptive technology is able to respond immediately to student progress and give instruction and practice at the optimal level. The author goes on to say that technology can order up the right kind of practice for a student until it is mastered. Technology is motivating to readers because during the process of practice the student is able to see even the smallest increments of improvement and this can get them excited. This excitement may lead to a new understanding and possibly love for reading.

**Guiding Question for the Research**

Conclusive statements have not been able to be made by researchers about the effectiveness of repeated readings because many interventions have been used together at the same time. The purpose of this initial one week study is to conduct research to identify the effectiveness of one of the previous repeated reading interventions when implemented in isolation from other interventions. This particular study will be identifying if repeated readings, through the use of a technology tool, will be an effective method of increasing oral reading fluency in first grade students. Technology has shown, in some studies, to be adaptive and a good facilitator of repetitive practice, let alone a great motivator of students of various ages. During this investigation, students will be utilizing Ipod touches to record their voices as they read passages. The study will show if, through replay of the voice recordings and repeated readings of the same passage, students will be able to increase their oral reading fluency.

**Methodology**

The purpose of this study was to investigate the effectiveness of repeated reading instruction on the oral reading fluency of first grade students. The study also researched the effectiveness of a specific repeated reading intervention, technology. Through the use of Ipod touches, students were able to listen to their own voices as they read an on level passage. Data was gathered to see if repeated readings of the same passage and replay of their voices on the Ipods would result in gains in first graders oral reading fluency.

**Participants**

The participants in the classroom being tested were made up of nineteen first grade students from a rural primary school. The building is currently a Title One reading school. There were eight male and eleven female children assigned to the classroom. The student population contained four special education students, five students who received Title One assistance, and five children who received speech and language services. Sixteen students participated in the daily core reading curriculum in the regular education classroom, while the other two children received their reading content in the special education resource room with the resource room teacher and para-educators.

**Assessments**

The initial assessment was a running record at the student’s current reading level. Each student was taken into a quiet room for administration of the assessment. The administrator then explained to the student that they were going to be timed as they read a story out loud.
The student was instructed to use good reading skills as they read the passage. As the student read, the administrator marked miscues and helped the student with error corrections. If the student was stuck on a word, the administrator waited three seconds then told them the correct word. The interventionist marked the word the student was on when one minute had passed. The student continued to the end of the passage to conclude the initial assessment. The student then returned to class and sent the next child over for the same assessment procedure. This process continued for all sixteen students in the regular education classroom.

**Repeated Reading Instruction using Technology**

**Assessments.** Daily assessment and repeated reading procedures for the technology intervention consisted of reading fluency passages at each child’s independent reading level. Students should read passages with at least 85% accuracy on the first read (Conderman & Strobel, 2008). Allington & Gabriel (2012) state that reading acceleration occurs when students are reading at 98% or higher accuracy. Anything below 90% does nothing for the students reading ability. Students were given one minute to orally read each of the three passages. Then the administrator calculated the number of words read correctly. A median score was taken from the assessment results. Those testing and repeated reading procedures were to assess and practice the students’ automaticity (fluency) in decoding on level text.

**Procedures.** After the administration of the pre-assessment on Monday, the students were each given an Ipod touch. The interventionist explained to them that they would be using the Ipods to record their readings of passages for the duration of the week. It was further explained that the reason for this was so they could hear their own voices after they had read the passage each time. Their goal was to improve not only their speed and accuracy, but their expression as well. The class reviewed the characteristics of a good reader. A “good reader” reads with story telling speed (not speed racer), focus on the words, and watches for the punctuation to use it correctly for good expression. After this brief review all students were able to experiment with the use of the voice recorder on the Ipods. They were shown how to insert the microphone, manipulate the application and then trade the headphones in place of the microphone to hear their own recordings. With the completion of the orientation time with the technology piece, the lesson was completed for the day.

Tuesday through Thursday's lessons began with core reading instruction as a whole group. The core reading instruction was a basic, routine curriculum which included phonics review, a grammar lesson, followed by a teacher read aloud. As the students began to work on their assigned reading centers, the interventionist began pulling children back for their small-group reading time. The small-groups contained two to five students all on or about the same independent reading level. Each day’s lesson began with a quick review of how to operate the Ipod touches including placement of the microphone and headphones, along with location of the necessary buttons. The interventionist also reviewed the goal of fluency (accuracy, speed, and prosody) improvement that they would be listening for. The educator demonstrated how to chart each of their one minute readings on their own graph. The interventionist explained that they would be charting each day for every time they read a passage. The purpose of the
charting was not just for documentation but also as a means to motivate the students to practice to improve their fluency score.

Next the students were given their passage for the day. The text was at each child’s independent reading level yet was different from the other students in the group so they were not getting reading clues from each other. The interventionist went around to each child and read the title of their passage aloud with them. After reading the title together with the educator, each student was asked to place their finger on the first word of the passage. They were reminded to softly read as the interventionist listen to each of them as the timer was going. They were instructed to raise their hand if they needed help with a word and to stop reading at the sound of the one minute timer.

After the first one minute reading, the children marked the word they were on with a blue marker. The students then removed the microphone and replaced it with the headphones. Then they listened to their first reading on the voice recorder. When finished listening they discussed briefly how they sounded and what they could do to sound like a good reader. The students replaced the headphones with the microphone again, and the same process was followed for the following two readings. Once all three readings of their passage had been recorded, marked at the one minute point (green for reading two and purple for reading three), and listened to, then the interventionist helped them to count up their words per minute. The words per minute were placed on the graph and a connecting line was drawn to show the growth they had made. After the graphing the students went back to their desk to work on centers as the next small-group came back to the table for their time with the Ipods. The same procedure was followed for all of the reading groups that day as well as for all three of the intervention days. The three days of intervention were followed by a posttest of oral reading fluency. The posttest procedure was the same as the pretest.

Results. The first grade students were given an oral reading fluency pretest. Then they practiced reading passages at their independent reading level while recording their voices onto Ipod touches. They read the text three times per day, with a new passage each day for three days. The students also graphed their fluency growth of each passage on their own graph. After the three days of repeated reading with the Ipod touches, the students were given a oral reading fluency posttest. Figure 1 shows the results of the pretest and posttest for the first grade students taking the oral reading fluency test.
Figure 1. Pretest and posttest results for sixteen first graders on an oral reading fluency test.

All students made a positive growth in words per minute from the pretest to the posttest. Pretest and postest scores together ranged from 23 to 84 words correct per minute. This is an overall 61 word range. The range for the pretest was 23 to 77 words per minute while the posttest range was 32 to 84 words. Students A to J reflect the scores of the females in the class. They had the highest pretest words per minute of 77 and the highest postest score of 84 words per minute. The males students are represented by letters K thorough P. They had the lowest scores on both the pretest and the postest. The lowest scores for the boys on the pretest was 23 words per minute and their lowest score on the postest was 32 words per minute.

Figure 2 shows the gain scores for the first grade students taking the oral reading fluency test.
All first graders that participated in the study made positive gains in their oral reading fluency. Students A through J represent the female students in the class, while K through P are the male students. The average word per minute gain for the female students was 18.9 words. However the average gain of words per minute for the male students was 22.5 words. There were 2 female students who had gains of ten points or less, three with a gain between eleven and twenty words, and five with a larger gain of 21 points or higher. The male students had one child with a gain of ten points or lower, two children with gains between eleven and twenty, and three young men with a larger gain of 21 points or higher.

Discussion

The repeated reading intervention with the Ipod touches went very well. Once the students got the hang of the procedures, the process was very smooth. The students were so excited to hear the improvements of their “good reading” voices and the charting of each repeated reading of the passages at their independent reading level was motivating. In fact, the students are now trying to find more avenues to chart their own progress in different academic areas. Oral reading fluency gains were made by all participants in this study. Although the male students in the class began with the lowest fluency scores, they were also the ones who made the largest gains on average. Five female students had fluency gains from the pretest to posttest of 21 points or higher, while the males only had three students making those similar gains. This may have been due to the lower number of males in the study compared to the number of females. Overall, the investigation of repeated readings showed to be successful in increasing the oral reading fluency of first grade students and the intervention of technology was effective, fun, engaging, and motivating to the children.
The next time this intervention is conducted, more practice with the voice recording application would be a great benefit to the students. It was such an exciting experience that at first, during the lessons, they were more interested in “playing” with the Ipods and hearing their voices recorded. They were not as focused on the improvement of reading aspect, which is quite typical of small children. One consideration might be to have only two of the four students in the small-group read at a time. For example, start half of the students on their one minute read, and when they are finished and are listening to their recordings, have the rest of the group begin their one minute reading. Then alternate the children again. This process will help to reduce the noise distraction. A limitation in this research was the amount of time. One week does not necessarily give sufficient amount of data. Therefore, reliability may be a concern. A final consideration to be made about this experiment is if the results would be more reliable if the pretest and posttest were both cold reads on the participants independent reading level instead of the posttest being a second reading of the same passage.
References


