An Evaluation of Read Naturally® on Increasing Reading Fluency for Three Primary Students with Learning Disabilities

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Abstract

The purpose of this research was to examine the effectiveness of the reading fluency program Read Naturally®. This program employs passage reading and comprehension questions. These are graded at various instructional levels (kg. to adult). The program employs several practice procedures such as passage reading along with a pre-recorded audiotape, reading the passage independently, and finally reading the same passage again to an adult. The participants were two, third graders (one boy and one girl), and a fourth grade boy. Data were collected on the correct words read orally per minute across various lessons. These data were gathered in the elementary school's resource room and taken daily. The effectiveness of the Read Naturally® program was evaluated with a multiple-baseline design. Our overall outcomes indicated that there was little change in correct words read per minute without practicing the passage (a cold read) and a large increase in correct words read after practice (a hot read). The results suggest that the procedure of repeated practice with an audiotape and practicing independently are effective procedures for increasing words read per minute. While the present outcomes were positive, further research is warranted regarding the efficacy of the Read Naturally® in the schools.

According to the summary findings of the National Reading Panel (2000) found five skills taught that are critical if children are going to learn to read. These are phonemic awareness, alphabetic principle, fluency with text, vocabulary,

and comprehension. In the natural progression of reading, students are expected to have mastered the skill of decoding by the end of third grade and move on to reading for meaning through the intermediate grades. Students in intermediate grades began to receive more course work that requires the ability to read fluently and comprehend the material content (Carnine, Silbert, Kameenui, & Tarver, 2010; Kameenui, 1998). LaBerge and Samuels (1974) described the importance of fluency as being able to "automatically free up cognitive resources that can be devoted to text comprehension (p. 293)." Fluency has also been suggested as a very important measure of reading competency (L. Fuchs, D. Fuchs, Hosp, & Jenkins, 2001; Samuels, 2002). When students have difficulty in developing accurate and fluent reading skills, it reduces their ability to learn to read for meaning because they may have to stop, decode and reread. When this occurs, reading becomes frustrating, laborious, and students may begin to dislike reading. When students develop literacy skills, it may prevent them from dropping out of school when schoolwork becomes too frustrating (Chambers, Dunn, & Rabren, 2004; McLaughlin & Vacha, 1992).

Fluency intervention needs to take place so that students can carry on in their education. The Read Naturally® program (Hasbrouck, Ihnot, & Rogers, 1999) is designed to improve reading fluency. It is an individualized program design that makes use of the research that links dependent comprehension and fluency. Also, the National Reading Panel (2000) listed the following areas as essential in reading: phonemic awareness, phonics, fluency, vocabulary, and reading comprehension. All of these essential areas of reading are found throughout the Read Naturally® program (Hasbrouck et al., 1999). Three Read Naturally® strategies that help develop essential reading elements are: (a) reading along with a fluent model, (b) individual repeated readings of the same passage at the student's reading level, and (c)

progress monitoring of the students improvement (Hasbrouck et al., 1999). The Read Naturally® program may be used as a reading supplement that provides extra practice for young readers, for students learning the English language, and as an intervention for struggling readers. When using Read Naturally®, students progress at their own pace; this aspect of the program could reduce anxiety that students may experience with reading because they are not forced to move ahead before they are ready. Finally, Bilingual students have been able to improve their reading fluency using Read Naturally® (Denton, Fletcher, Anthony, Parker, & Hasbrouck, 2004).

Students with learning disabilities (LD) often struggle with reading fluency, which is associated with difficulties in reading comprehension. Chard, Vaughn and Tyler (2002) found that despite recent effort and attention that reading fluency is receiving, "it is not clear which parts of interventions are designed to enhance fluency for the most struggling readers" (p. 386). "The findings of several research studies suggest that effective interventions for building fluency skills for students with LD include providing multiple opportunities to repeatedly read familiar text independently with corrective feedback. In addition, such interventions should employ a performance criterion along with increasing text difficulty (Chard et al., 2002). Repeated reading is a large component of why Read Naturally® might be successful for readers working on increasing their reading fluency. In addition, there is a great deal of research (Chard et al., 2002; Gilbert, Williams, & McLaughlin, 1996; Therrien, 2004) to support the use of a repeated reading strategy. Samuels (2002) noted that repeated reading is a strategy designed to increase fluency in word identification and recognition. When a student reads the same passage more than once they are more apt to recognizing the words in the story. The words they read repeatedly become words that they

automatically say when they come to them in various settings in school. In Read Naturally®, (Denton, Fletcher, Anthony, & Francis, 2006; Hasbrouck et al., 1999) the students read each one of the 24 passages up to five times. Next, they read this passage again and their performance is plotted. This is defined in Read Naturally®, as a cold read. A hot read is three practice reads with the audiotapes. Then the student is again assessed over the passages and this is defined as a hot read. Over those reads, the student will be looking at the same words, which increases his or her ability to recognize the words. Over time the students come to learn the words in the stories, which increases their reading fluency because they can say many of the words without taking extra time to decode them.

This study was implemented to determine the effectiveness of the Read Naturally® program on increasing reading fluency of three elementary students with learning disabilities. It was hypothesized that increasing their reading fluency will help them move on to reading for comprehension. A final purpose was to evaluate the effectiveness of the specific program, Read Naturally®, with elementary students with learning disabilities and we wanted to add to the literature regarding Read Naturally®.

Method

Participants and Setting

The participants were Trey, a 10-year-old fourth grade boy, Miranda, an 8-year-old third grade girl, and "Jacob an 8 year-old third grade boy. Each participant was given a pseudonym to protect their identity. Each attended an elementary school in the Inland Northwest. All three participants were enrolled in a general education classroom and received special education services in reading, writing and math in a special education resource room. Trey and Miranda received 30 minutes of reading and math instruction daily. They both

received instructional support from the resource room three times a week for a total of 150 minutes per week. Jacob received resource room support in reading exclusively for 150 minutes per week. Each of our participants received 30 additional minutes of Read Naturally® (Hasbrouck et al., 1999), a self-paced program that is targeted towards increasing reading fluency.

The areas of concern on Trey's individualized education plan (IEP) include reading, writing, math and spelling. He was beginning to middle first grade level in all areas. Trey was also behind his peers in social development, mostly as a result of his delayed development cognitively and his learning disability. Miranda had the habit of speaking in "baby talk" and had to be reminded to "talk like a third grader" repeatedly in the resource classroom. The areas of concern on Miranda's IEP are reading, writing, math and spelling. She was already showing progress in all areas because she began receiving special education when her IEP was finalized. Jacob was a quiet natured boy, who displayed a calm demeanor in all settings. The area of concern on Jacob's IEP is reading, but he also receives additional instruction in math.

The intervention took place in the school's resource classroom. Data were recorded daily when the participants came into the classroom and sessions were 30 minutes long. The participants typically completed two to three stories from the Read Naturally® program each day. The participants and first author sat at a kidney shaped table for the intervention, unless that table was in use then they sat at one of the 12 student desks with two chairs. They sat next to each other so that the researcher could follow along with the story as the participants read. When the intervention took place, there were as many as three to four other students working on their Read Naturally® materials. An additional three to four students also worked in another small group with a para-

professional. All of the participants were encouraged to improve their Read Naturally® scores and plot their performance. The study took place over a 6-week period.

Materials

All of our participants in this study received due to their IEP goal in reading. Reading fluency was a concern because they were all below the state required Grade Level Expectations (GLE). The reading fluency GLE, for a fourth grader, according to the Washington State Essential Academic Learning Requirements (1998) was 115-125 + correct words per minute (cwpm). For a third grader, the GLE for Washington State was being able to read 110-120+ cwpm. The materials employed included 24 non-fiction, high interest stories for each level, tapes that correspond with the stories and levels, and a tape player with headphones. The grade levels begin at .8 and reach 8.0. The lower level stories within the program contain a high percentage of Fry's 1,000 most frequently used words in the English language and as the levels increase, that percentage drops (Hasbrouck et al., 1999).

Each participant had a folder that included the story they were currently reading, a table of contents for all of the stories that they have or will read, and a graph to mark and plot the date, the story read, and their performance. As part of the District's screen and teaching procedures Read Naturally® was employed in the resource room setting.

Dependent Variables and Measurement Procedures

The dependent variable was the number of correct words read while the participant was reading a short story at their instructional level.

Cold read. During each 30-minute session, the participants would read the passage aloud as the first author would follow along and count the errors for the 1-minute

timing. The errors were then subtracted from the total number of words read in the minute. This was referred to as the "cold read", in which the students read the passage without any practice or cues. An error was recorded when the participants omitted a word, said the word incorrectly, reversed the order of words, or if the first author told the participants the word when they could not read it within 5 seconds of trying to sound it out. When the participants misread a word then said it correctly within 5s (a self-correction) was not counted as an error. After one minute, the first author counted up the number of words read, subtracted the number of errors, and then marked that number on the participant's graph. On each graph, a thick line marked the participant's goals. This goal matched the Washington State Standards (1998) for reading fluency at each grade level. When the participants scored lower than their intended goal, they were required to go find the corresponding tape to their story and listen to it three times and follow along with their finger while saying the story aloud with the tape. If the participants received a higher score than their goals, they did not have to listen to the tapes. Therefore, when a participant passed their story on a cold read, they did not have to read it again. Participants were required to pass a cold read without more than five errors. If they had more than five errors, they still were required to listen to the tapes. The same procedure was used for a hot read. If they had more than five errors, they had to listen to the tape one more time and practice saying the story aloud at a desk. The cold read score was plotted with a blue marker, pencil, or crayon.

Hot read. For a hot read, the participants would read the story to the first author, while the first author would follow along and count the number of errors just as in a cold read. After the one-minute elapsed, the first author would count up the number of words read and subtract the number of errors. This score would be plotted on their graph. If the

participants received a greater score than their goal, they were done reading that particular story. If the participant did not meet his or her goal, then they would need to listen to the tapes again and practice saying the story aloud independently before they reread the story to the first author again. Not passing the story on the first hot read also meant that the story had to be reread again after the participant completed all of the other stories. This was recorded by circling the corresponding number of the story read on the table of contents, which was stapled to the participants' graph and kept in their individual Read Naturally® folders. These data for a hot read was plotted on a bar graph using a red marker, pencil, or crayon.

Experimental Design and Conditions

A combination multiple baseline and reversal design (Kazdin, 2011) across stories was employed. This was done to evaluate the effects of a cold read and a hot read on the number of correct words for the stories in Read Naturally® (Hasbrouck et al., 1999).

Baseline. Baseline consisted of a cold read with no practice reading. During this time the first author recorded the correct number of words read in one minute while reading the story. This condition was in effect for three stories for Trey and five stories for Miranda, and seven stories for Jacob.

Read naturally®: A cold read. Each session the participants independently choose a story that they were in the process of reading or a new story that they had not read. The participants would read the story aloud to the first author. During a cold read, the participant had not received any prior instruction or viewing the story and the only assistance they received was the author correctly pronouncing the word when they were unable to pronounce it or 5 seconds had elapsed without success. The first author

recorded the number of words read minus the errors for the cold read. An error was made when the Participants substituted, omitted, misread words, or the first author told them the word after a 5 second period. If the participants made a self-correction, an error was not counted. After the participant finished, the story, the date, and the number of words correct were charted on the graph. The participant was required to color the graph up to the line of correct number of words read. If the participant was below their goal for the lesson, they were required to listen to the tapes. If the participants were above their intended goal on a cold read with less than 5 errors, they did not have to listen to the tapes and could pick a new story. These procedures were in effect for all stories.

Read naturally ®: A hot read. The participants practiced their story for the hot read with the first author. Their goals varied based on the participant's level. The participants would practice by getting the corresponding tapes to the story that they were reading. The participants would listen to the tape with headphones for a total of three times. The first time they would listen and follow along the word with their bookmarks. The second and third times, the participants would say the words aloud along as the tape said them; they would still follow the words with their bookmarks. The multiple readings strategy used in Read Naturally® (Hasbrouck et al., 1999) has been validated through research as being effective for increasing a Participant's reading speed and accuracy.

Next, our participants were instructed to take their story to a desk and orally practice reading the whole story. For the hot read each participant, would read his or her practiced story to the first author while being timed for one minute. The first author would follow along and count the number of errors made. Errors were measured in the same as a cold read. The participant was allowed to ask any decoding

or vocabulary questions before the hot read, but those words were subsequently, counted as errors. Read Naturally® requires the participant to listen to the correct pronunciation and expression on a tape three times and then practice them independently After that, the participants should know the vocabulary within the story. Hasbrouck and Tindal (2006) noted that listening to a fluent reader on the pre-recorded tape helps encourage proper pronunciation, expression, vocabulary, and phrasing. When the one-minute timing was completed, the total number of words were counted and the errors were subtracted. These scores were recorded on a graph for each participant. If the participants passed by meeting or going above their goal, then they moved on to the next story. If the participants made more than five errors or did not meet their goal, then they listened to the tape one more time and practiced independently. The participants were then prompted to read this story a second time after they completed reading all other stories on their table of contents. The participants were responsible for coloring in the area on their graph from a cold read to a hot read, to show their progress.

Reversal. A five-story reversal was employed for only Trey. This was done to provide an analysis of what would take place if hot reads were not employed. This condition was only in effect for Trey. Also, such a withdrawal of a hot read could begin to examine the effectiveness of hot reads as well as a measure of maintenance of treatment effects without hot reads.

Reliability of Measurement

The first author and master-teacher carried out a simultaneous but independent count of each participant's oral reading. This occurred for both cold and hot reads. Each recorded the number of corrects and errors while the participants read their stories. The first author and master

teacher sat to they could hear the students read but could not observe how each other was marking each word. Reliability was checked on five different occasions for both cold and hot reads. Interobserver agreement was calculated five times. The number of agreements was divided by the number of disagreements plus agreements and multiplied by100. An agreement was scored if each observer marked the word in the same manner. Any deviation from scoring was defined as a disagreement. The inter-observer agreement between the first author and the master teacher averaged 90% with a range from 80 to 100%.

Results

The overall results of this study showed variable outcomes for cold reads across all three participants. Two of the participants' performance (Miranda and Jacob) for cold reads decreased over time. For Trey, several of his cold read data points overlapped with his performance during his hot reads. In addition, an immediate increase of 30 to 40 words for their hot reads was found for all three of our participants when Read Naturally®, was first implemented (See Figure 1).

In baseline, Trey (top panel) averaged 42 correct words per minute (cwpm). During Read Naturally®, Trey increased his reading fluency by 40 words. His average performance with hot reads increased to 82 cwpm. Miranda, (middle panel) read at an average of 65 cwpm during baseline.

She improved her reading fluency cwpm for her hot reads (M = 91.625 cwpm; range = 80 to 115cwpm). Jacob (bottom panel) averaged 59 cwpm in baseline. Jacob increased his average cwpm to 90.86 words with a range of 80 to 105 cwpm for hot reads.

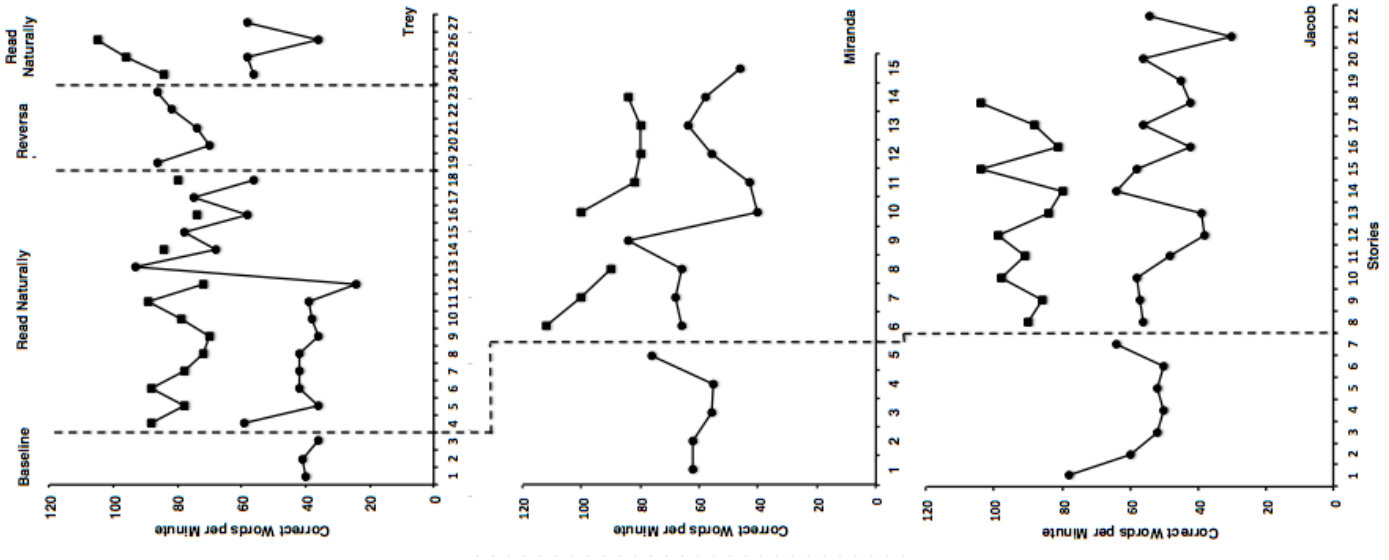

Figure 1. The number of correct words read per minute for cold reads (closed circles) and hot reads (closed squares) for Trey (top panel) for baseline, read naturally®, reversal, and Read Naturally®. For Miranda (middle panel), and Jacob (bottom panel) for baseline Read Naturally®.

Discussion

Read Naturally® was found to be a somewhat successful academic intervention for each of our three participants. From the data collected, each participantwas able to increase their overall mean fluency in a special education resource room setting. All participants increased in their fluency and gained confidence in their reading.

There were many positive aspects associated with the Read Naturally® program. It is a flexible program that can be modified for any classroom setting, ability level, and instructional area. It requires minimal time per session to set up and implement. When systematically employed, the intervention typically results in increased performance in reading fluency. This was found in the present investigation. We were also able to document an increase in reading fluency for correct words per minute at each participant's reading level. This program should be able to be implemented and managed by teachers, paraprofessionals, and peer tutors (Therrien, 2006).

Read Naturally® should be a successful intervention for the students involved because its components are based on research-based studies for students with learning disabilities. The "drill-repetition-practice, with its daily testing, repeated practice, and sequenced review" has been shown to be very beneficial for students with learning problems (Swanson & Greenwood, 1996). Read Naturally® allows for repeated practice on numerous passages and specific error correction and remediation procedures. The efficacy of repeated reading was part of the Read Naturally® program. For example, after the students have listened to the audiotape three times, their correct words read per minute increased by an average of 30 to 40 words. The National Reading Panel's (2000) findings also concluded that guided, repeated oral reading significantly improves word recognition, reading fluency, and comprehension in students of all ages.

The present outcomes provide an additional replication of those findings.

During the study, one of our participants, Trey, was completing a level in Read Naturally®. When a student is about to finish a level, he or she must go back and re-do the stories they did not pass on their first hot read. They are required to read each story to an adult in the classroom. Beginning at story 1, Trey was redoing the stories that he had read before and had not met his goal for the first hot read. There were a number of stories that followed in which the cold read line graph surpassed the hot read line graph. This indicated that Trey already encountered these stories and had repeated each a number of times. This prior experience made his cold reads higher and caused the overlap between hot and cold reads. The number of overlapping data points between hot and cold reads was 9. This would indicate a very weak effect at best (Kazdin, 2011; Kratochwill, Hitchcock, Horner, Levin, Odom, Rindskopf, & Shadish, 2010). Miranda had three overlapping data points with her performance on cold read, while Jacob had none.

Miranda had the fewest data points due to excessive absences. She underwent corrective eye surgery, for a lazy eye when she was absent. Miranda missed a week during this time. Miranda was also absent an additional seven days for her recovery. In spite of her large number of absences, her performance improved for her hot reads but was quite variable for her cold reads. This is yet another indication of the possible effectiveness of repeated reading component found in Read Naturally®.

Jacob had the most consistent outcomes. He remained on one Read Naturally® level for the duration of the study. His cold reads were variable, but overall performance declined over time on his cold reads. By the end of data collection, all of our participants were decreasing their

CWPM on their cold reads. This was an interesting outcome that warrants further analysis.

The only possible negative aspect of the research was related to scheduling of students in the resource room. All of the participants were in the same reading group and therefore, they participated in the Read Naturally® process at the same time everyday. Although it is an independent program, an adult is required to listen to both the cold and hot reads. This was a shortcoming, because at times, there was only one adult that could listen to them read their passages. There were times, when each of the participants wanted more time to practice before they read to an adult.

Each of our participants showed an immediate improvement when Read Naturally®, was first employed. This provides some evidence regarding the immediacy of effect (Kazdin, 2011; Kratochwill et al., 2010). The overlap between hot and cold reads for each participant was variable. Trey had a great deal of overlap, Miranda had three overlapping data points, and Jacob had none. This provides some evidence of efficacy of our intervention. To determine the effectiveness of Read Naturally®, it would need to be implemented across more different participants and classrooms (Kratchowill et al., 2010). Clearly, this needs to occur in future research employed with students with learning disabilities. With the cost of Read Naturally®, estimated at approximately 129.00 per student, districts should wait to employ this program until more evidence is provided as to the effectiveness the program.

Before firm conclusions regarding Read Naturally can be made, additional data for hot would have to be collected in baseline. One could allow students access to the tapes during baseline so we have a comparable analysis during baseline (Johnson & Pennypacker, 2009). In the present report, we did not collect data for hot reads. This issue will have to addressed in future research.

For our participants, each increased his or her instructional level. Based on subjective reports by the classroom teacher, each appeared to acquire the confidence to be successful in reading. At the end of data collection, each participant was able to demonstrate this to his or her general education teachers in their respective classrooms.

References

Carnine, D., Silbert, J., Kameenui, E. J., & Tarver, S. G. (2010). *Direct instruction reading* (5th. ed.). Upper Saddle River, NJ: Merrill/Prentice-Hall/Pearson.

Chambers, D., Dunn, C., & Rabren, K. (2004). Variables affecting students' decisions to drop out of school. *Remedial & Special Education, 25*, 314-325.

Chard, D., Vaughn, S., & Tyler, B. J. (2002). A synthesis of research on effective interventions for building reading fluency with elementary students with learning disabilities. *Journal of Learning Disabilities, 36*, 386–406.

Denton, C. A., Anthony, J. L., Parker, R., & Hasbrouck, J. E. (2004). Effects of two tutoring programs on the English reading development of Spanish-English bilingual students. *The Elementary School Journal, 104*, 289-305.

Denton, C. A., Fletcher, J. M., Anthony, J. L., & Francis, D. J. (2006). An evaluation of intensive intervention for students with persistent reading difficulties. *Journal of Learning Disabilities, 39*, 447–466.

Entwisle, D., & Hayduk, L. (1981). Academic expectations and the school achievement of young children. *Sociology of Education, 54*, 34-50.

Fuchs, L., Fuchs, D., Hosp, M. K., & Jenkins, J. (2001). Reading fluency as an indicator of reading competence: A theoretical, empirical, and historical analysis. *Scientific Studies of Reading, 5*, 239-256.

Gilbert, L., Williams, R. L., & McLaughlin, T. F. (1996). Use of assisted reading to increase correct reading rates and decrease errors of students with learning disabilities. *Journal of Applied Behavior Analysis, 29*, 255-257.

Hasbrouck, J. E., Ihnot, C., & Rogers, G. (1999). Read Naturally®: A strategy to increase oral reading fluency. *Reading Research and Instruction*, 39, 27-38.

Hasbrouck, J. E., & Tindal, G. (2006). Oral reading fluency norms: A valuable assessment tool for reading teachers. *The Reading Teacher, 59*, 636–644.

Johnston, J. M., & Pennypacker, H. S. (2009). *Strategies and tactics of behavioral research* (3rd. ed.). New York, NY: Routledge.

Kameenui, E. J. (1998). The rhetoric of all, the reality of some, and the unmistakable smell of mortality. In J. Osborn & F. Lehr (Eds.), *Literacy for all* (pp. 319-338). New York, NY: Guilford.

Kazdin, A. E. (2011). *Single case research designs: Methods for clinical and applied settings* (2nd ed.). New York, NY: Oxford University Press.

Kratochwill, T. R., Hitchcock, J., Horner, R. H., Levin, J. R., Odom, S. L., Rindskopf, D. M. & Shadish, W. R. (2010). Single-case designs technical documentation. Retrieved from What Works Clearinghouse website: http://ies.ed.gov/ncee/wwc/pdf/wwc_scd.pdf.

LaBerge. D., & Samuels, S. J. (1974). Toward a theory of automatic information processing in reading. *Cognitive Psychology, 6*, 293-323.

National Reading Panel. (2000). Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction. Retrieved from http://www.nichd.nih.gov/publications/nrp/smallbook.htm

Samuels, S. (2002). Reading fluency: Its development and assessment. In A. E. Farstrup, & S. Samuels (Eds.). *What research has to say about reading instruction* (pp. 166-183). Newark, DE: International Reading Association.

Swanson, H. L., & Greenwood, C. R. (1996). Drill-repetition-practice as effective strategies for students with learning disabilities: Research on the practices and behavior of effective teachers at the Juniper Gardens Children's Project: Implications for the education of diverse learners. In H. L. Swanson (Ed.). *Research on classroom ecologies: implications for inclusion of children with learning disabilities* (pp. 39-86). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Therrien, W. J. (2004). Fluency and comprehension gains as a result of repeated readings: A meta-analysis. *Remedial and Special Education, 25*, 252-261.

Therrien, W. J., & Kubina, R. M. Jr. (2006). Developing reading fluency with repeated reading. Intervention *in School and Clinic, 41*, 156-160.

Tilly, D. (2009). Questions and answers on response to intervention. *Journal of Special Education Leadership, 50*(4), 7,12.

Washington State Commission on Student Learning, Essential Academic Learning Requirements. (1998). Olympia, WA. Retrieved from www.k12.wa.ua/ curriculuminstruct/ealrs.asp.