

THE EFFECTS OF REPEATED READINGS AND FLASHCARD ERROR DRILL THE READING ACCURACY AND FLUENCY WITH RURAL MIDDLE SCHOOL STUDENT WITH LEARNING DISABILITIES

Joan Herberg
Gonzaga University
USA
jherberg@ohsd.net

T. F. McLaughlin****
Gonzaga University
USA
mclaughlin@gonzaga.edu

K. Mark Derby
Gonzaga University
USA
derby@gonzaga.edu

Kimberly P. Weber
Gonzaga University
USA
weberk@gonzaga.edu

ABSTRACT

The participant in this study was a 13-year-old student with a learning disability in reading. She was currently receiving special education instruction in the student-learning center at her middle school for reading, math and writing. The purpose of this study was to determine if repeated reading and with flashcards would improve reading fluency and accuracy. The dependent variable was the number of words per minute read by the participant. For reading accuracy, the dependent variable was the number of correct and error words read in a given passage. The intervention consisted of repeated readings and error correction drill with flashcards. Results showed that repeated readings and the error correction drill with flashcards increased the number of words per minute read by the participant, and decreased the number of reading errors. Suggestions for future research as well as issues of classwide implementation were made.

Keywords: learning disabilities, rural middle school student, repeated readings, error drill, flashcards

INTRODUCTION

Students with learning disabilities who do not learn their basic skills tend to have a difficult time as students and later as adults (Lerner & Johns, 2012; Lloyd, 1978). Data on adult outcomes for persons who cannot read have been very negative across a wide variety of measures (Gersten & Keating, 1987; Livingstone, 1998). A recent set of meta-analyses for students with learning disabilities (Swanson, Hoskyn, & Lee, 1998) have indicated that there are evidence-based approaches that have been successfully employed for students with difficulties in their basic skills. For example, Direct Instruction was found to have large effects on students with learning disabilities performance in the basic skills (Carnine & Kameenui, 1998; Engelmann & Carnine, 1988; Gersten & Keating, 1987; McLaughlin & Vacha, 1994; Swanson et al., 1998).

Students with learning disabilities often do not respond academically to general education classroom practices (Blackwell & McLaughlin, 2005; Heward, 2013). Determining strategies that work for individual students is necessary. Three strategies that have been used successfully with special need's students, as well as students without special needs, are repeated readings (Sweeney, Omness, Janusz, & Cooper, 1992) use of Direct Instruction materials (Engelmann & Carnine, 1982; Johnson, Luiten, Derby, McLaughlin, Weber, & Johnson, 2001; Marchand-Martella, Slocum, Martella, 2004; Swanson et al., 1998) and flashcard drill (Casey, McLaughlin, Weber, & Everson, 2003).

**** Preparation of this document was in partial fulfillment of the requirements for EDSE 522- Precision Teaching, a component of the first author's Master of Education in Special Education from Gonzaga University, Spokane, Washington. Now teaching at Oak Harbor School District at North Whidbey Middle School, Oak Harbor, WA. The researchers would like to thank the participant for her cooperation and enthusiasm for learning. Requests for reprints can be sent to the T. F. McLaughlin, Professor, Department of Special Education, Gonzaga University, Spokane, WA 99258-0025 or via email mclaughlin@gonzaga.edu

An additional effective procedure for children with learning disabilities has been assisted and/or repeated readings. With this procedure, the child listens to the passage and then reads the passage over until their correct rate is high and error rate is low. Repeated and or assisted reading has been shown to be effective with adolescents with learning disabilities (Gilbert, Williams, & McLaughlin, 1996; Kann, 1984; Sweeney, Omness, Janusz, & Cooper, 1992) and students with low reading ability (Blackwell, Stookey, & McLaughlin, 1996; Gregory McLaughlin, Weber, & Stookey, 2004). The overall goal of using assisted or repeated readings is to expose the student to a large number of oral samples of correct reading. Another goal is provide practice with text just after hearing/seeing/and or following along a correct reading sample (Gregori & McLaughlin 1996).

A purpose of this study was to determine and replicate the effectiveness of repeated reading and flashcard error drill procedures on reading accuracy and fluency with a middle school student with learning disabilities. Another purpose was to replicate and extend our previous finds with another age group and setting.

METHOD

Participant and Setting

The participant, "Sue", was a 13-year-old middle school student with a specific learning disability. Sue was receiving special instruction in the student learning center in her rural middle school for reading, writing and math. Based on the results of the *Woodcock-Johnson III: Tests of Achievement* (Woodcock, McGrew, & Mather, 2001). Her reading fluency was at the third grade level. Only her performance in math was at grade level.

The setting for this case report was a small rural middle school in the Pacific Northwest. The study took place in an empty classroom that was not in use at the time of the sessions. The participant and the researcher were the only individuals in the classroom. Sessions lasted about 45 minutes and were held three to five days a week depending on the daily schedule and the participant's attendance. The sessions were always held at the same time, which was during the scheduled first period class.

Materials

Passages from *The Six-Minute Solution: A Reading Fluency Program* (Adams & Brown, 2003) were used for the reading fluency and accuracy study. Cards containing difficult words from the passages were used for the error correction drills.

Dependent Variables

There were two dependent variables measured. For reading accuracy, the number of correct and error words read in a given passage were taken. For reading fluency, number of words per minute read by the participant was recorded.

Data Collection and Interobserver Agreement

For the reading fluency and accuracy portion of the study, Sue was instructed to read the passage. The reading was timed and errors were marked. Omitted words, tense changes, pronunciation errors and substitutions were marked as errors. Words per minute were calculated by dividing the amount of seconds needed to read the passage by the total number of words read. For accuracy data, errors were counted, and subtracted from the number of words read to calculate correct rate.

Interobserver agreement data were collected for on all sessions by two observers. If both observers agreed that a response was correct or incorrect, that was scored as an agreement. If one observer did not agree that a word was correct or incorrect, this was counted as a disagreement. The percentage was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. The percent of inter observer agreement for the 11 comparisons was 100%. For the timings, the number of words were counted as either correct or as errors. The smaller number of corrects or errors were divided by the larger and multiplied by 100. Agreement for the total number of corrects and errors were 100%.

Experimental Design and Conditions

A single case ABABABAB reversal design (Kazdin, 2010) was used to evaluate the effectiveness of the flashcards and repeated readings for reading fluency and accuracy. The first reading of a new passage was used for baseline at the beginning of the study and for each reversal. *Procedures*

General Procedures.

During baseline, the participant would read the current passage from the reading fluency program. The researcher would time this reading, mark any errors and not provide any feedback. After the baseline session, each session would begin with a flashcard drill over any challenging words or missed words that were noted by the researcher during baseline. Following the flashcard drill, she would have a timed reading of the passage and feedback was given.

Baseline

For reading fluency, baseline was the first reading of a new passage. No feedback was given, the passage was timed and errors were counted. This condition was applied three different times across four different reading passages.

Repeated readings + flashcard drill (RR + FC)

Repeated readings were used as an independent variable for reading fluency and accuracy. Sue was allowed read the same passage each day until her reading fluency measured 80 wpm or higher, and her error rate was six or lower. Flashcard drill was an additional procedure to improve her reading fluency. A card with a word or fact was presented to Sue. If the word was read correctly, the card was moved to the back of the list. If the word was not correct, or if Sue had no response within the five-second time limit, the correct answer was given to Sue, and the card would be placed just a few cards back from the front of the deck. This would insure that missed facts or words would be presented more frequently. The flashcard procedure would continue for about five minutes to eight minutes. These procedures were implemented across four different reading passages.

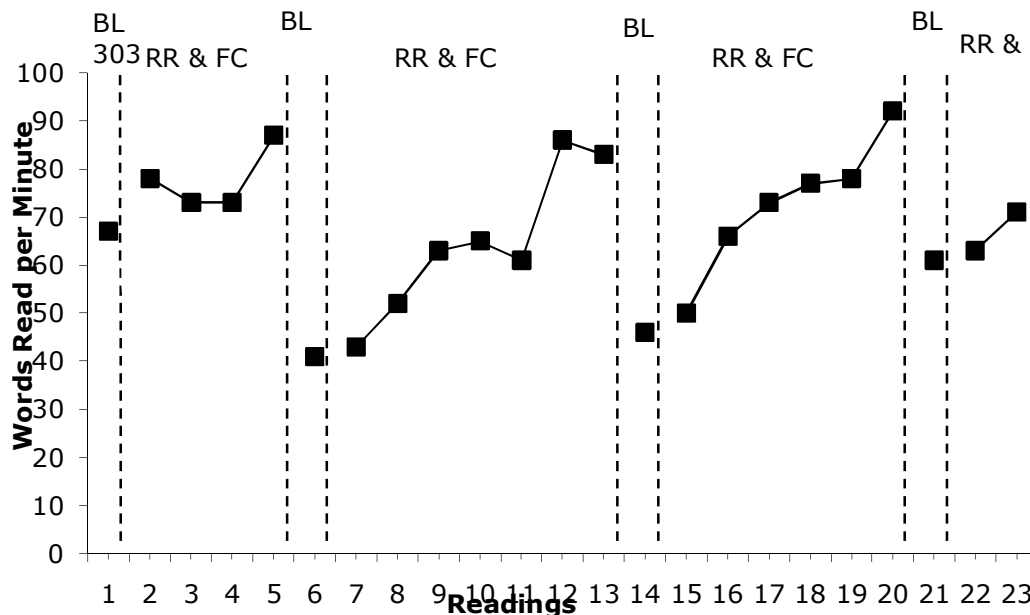


Figure 1. Number of words read per minute during baseline and repeated reading and flashcards.

RESULTS

The data indicates improvement in oral reading accuracy and fluency with the use of repeated readings plus flashcards. During baseline, Sue read an average of 93% on the number of words read correctly.

This increased to 98% during repeated reading and flashcards. Errors ranged from 15 to 22 words during baseline and decreased to an average of 5.2 to 7.3 during repeated reading and flashcards.

For baseline 303, the reading rate was 67 wpm. After repeated readings plus flashcards the rate averaged 78 wpm (range 73 to 87). For baseline 304, the rate was 41 wpm. After the intervention, there was an average rate of 69 wpm (range 44 to 86). For the third baseline condition, passage 305, the rate was 46 wpm. Following the intervention, the rate increased to an average of 73 wpm (range 50 to 92). The final baseline rate for passage 306 was 61 wpm. The study ended before the passage 306 interventions were completed. After two sessions of the independent variable condition, reading rate had increased to 67 wpm (range 63 to 71) for this passage.

Results for reading fluency indicate an accelerating data path from baseline levels for all passages read. The participant's error rate shows a decelerating data path from baseline for passages 304, 305, and 306. For passage 303 the error rate maintained a rate of five or six after an initial decrease of 60% from baseline.

DISCUSSION

The repeated readings and flashcards were successful in increasing Sue's reading fluency rate and accuracy. Sue enjoyed this program and was motivated by seeing her improvement over time. The flashcards were very effective for unknown and challenging words. Most of the errors made after two or three intervention sessions were plural errors (e. g., "back" instead of "backs"), or substitution errors (e. g., "this" for "that"), but rarely any errors on the original unknown words.

Sue was very responsive to the interventions and very cooperative throughout all of the assessments and interventions. Since this was a new school for the participant, this extra individual attention hopefully helped her transition.

The present outcomes replicate our previous work with repeated and assisted reading with students having difficulty in reading (Blackwell et al., 1996; Gregori & McLaughlin, 1996; Gilbert et al., 1996; Van Wagenen, Williams, & McLaughlin, 1994). The use of flash cards as part of a repeated readings package further validates their use in reading (Casey et al., 2003; Gregori & McLaughlin, 1996; Sweeney et al., 1992). In the present case report, these outcomes were replicated with a student at the middle school rather than either an elementary or high school.

Due to the combining of both repeated readings as well as error drill with flashcards, we were unable to determine the individual contribution of each variable (Kazdin, 2010) This will have to be examined in future research. Since the classroom teacher felt that using both procedures did not require much additional effort, maybe such a component analysis need not take place.

It appears that a single teacher with a typical special education teaching load was able to implement and validate the use of repeated readings and flashcard drill. This aspect of the case report should add to the applicability of these two procedures. The use of evidence-based procedures was able to be replicated and extended to a different population and in a different geographical setting. Much of our previous work in reading has been carried out in a large urban school district, but in the present case report, data were gathered in a rural middle school. Both the classroom teacher and the participant were very pleased with the outcomes.

REFERENCES

- Adams, G. N. & Brown, S. M. (2003). *The six-minute solution: A reading fluency program*. Longmont, CO: Sopris West.
- Blackwell, A., & McLaughlin, T. F. (2005). Using guided notes, choral responding and response cards to increase student performance. *International Journal of Special Education*, 20(2) 1-5. Retrieved from: <http://www.internationaljournalofspecialeducation.com/>
- Blackwell, A., Stookey, S., & McLaughlin, T. F. (1996). The effects of using direct instruction and a re-reading contingency with precision teaching. *Journal of Precision Teaching and Celeration*, 13(2), 19-22.
- Carnine, D. W., & Kameenui, E. J. (1998). *Effective teaching strategies that accommodate diverse learners*. Upper Saddle Bank, NJ: Prentice Hall.
- Casey, J., McLaughlin, T. F., Weber, K. P., & Everson, M. (2003). The effects of five minute practice, unlimited practice, with SAFMED cards on correct and error rate for two elementary school children with learning disabilities. *International Journal of Special Education*, 18(1), 66-72
- Engelmann, S., & Carnine, D. (1982). *Theory of instruction*. New York: Irvington.
- Gersten R., & Keating, T. (1987). Long term benefits from direct instruction. *Educational Leadership*, 44(6), 28-31.
- 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.
- Gregori, A., & McLaughlin, T. F. (1996). Effects of error drill and assisted reading on oral reading. *Journal of Precision Teaching and Celeration*, 13(2), 23-27.
- Gregory, A., McLaughlin, T. F., Weber, K. P., & Stookey, S., (2005). The effects of using direct instruction and a re-reading contingency with a high school student. *International Journal of Special Education*, 20(1), 50-54. Retrieved from: <http://www.internationaljournalofspecialeducation.com/>
- Heward: W. L. (2013). *Exceptional children: An introduction to special education* (8^{10th}ed). Boston: Pearson Education.
- Johnson, J. J., Luiten, L. M., Derby, K. M., McLaughlin, T. F., Weber, K. P., & Johnson, M. (2001). Evaluating the effectiveness of *Teach Your Child to Read in 100 Easy Lessons* using graded word lists. *Proven Practice: Prevention and Remediation Solutions for Schools*, 3, 68-74.
- Kann, R. (1984). Increasing motivation and reading comprehension of exceptional learners: Three modeling techniques. *The Pointer*, 29, 20-22.
- Kazdin, A. E., (2010). *Single case research designs: Methods for clinical and applied settings* (2nded.). New York: Oxford University Press.
- Lerner, J. W., & Johns, B. (2012). *Learning disabilities and related mild disabilities: Teaching strategies and new directions* (12thed.). Boston: Houghton Mifflin Co.
- Livingstone, D. W. (1998). *The education-jobs gap: Underemployment or economic democracy*. Boulder, Co: Westview.
- Lloyd, D. N. (1978). Prediction of school failure from third grade data. *Educational and Psychological Measurement*, 38, 1193-1200.
- McLaughlin, T.F., & Vacha, E. F. (1992). School programs for at-risk children and youth: A review. *Education and Treatment of Children*, 15, 255-268.
- McLaughlin, T. F. Williams, B. F., Williams, R. L., Peck, S. M., Derby, K. M., Bjordahl, J. M., & Weber, K. M. (1999). Behavioral training for teachers in special education: The Gonzaga University program. *Behavioral Interventions*, 14, 1-59.

Marchand-Martella, N. E., Slocum, T. A., & Martella, R. C. (2004) (Eds.). *Introduction to Direct Instruction*. Boston, MA: Pearson Education, Inc.

Sherman, B., McLaughlin, T. F., Derby, K. M., & Johnson, G. (2009). The effects of assisted reading using the reading attainment system on time to completion and comprehension for a middle school student with learning disabilities. *Journal of Educational Research: JER*, 12(2), 86-96. Retrieved from: http://www.iub.edu.pk/jer/previous_issue.html

Swanson, H. L., Harris, K. & Graham, S. (2003). (Eds.) *Handbook of learning disabilities*. New York: Guilford.

Swanson, H. L., Hoskyn, M., & Lee, C. (1999). *Interventions for students with learning disabilities: A meta-analysis of treatment outcomes*. New York: Guilford.

Sweeney, W. J., Omness, C. K., Janusz, K. L., & Cooper, J. O. (1992). Adult literacy and precision teaching: Repeated readings and see/ cover/ write practice to improve reading and spelling. *Journal of Precision Teaching*, 9(1), 6-11.

Van Wagenen, M. A., Williams, R. L., & McLaughlin, T. F. (1994). Use of assisted reading to improve reading rate, word accuracy, and comprehension with ESL Spanish speaking students. *Perceptual and Motor Skills*, 79, 227-230.

Woodcock, R. W., McGrew, K. S., & Mather, N. (2001). *Woodcock-Johnson III: Tests of Achievement*. Itasca, IL: Riverside Publishing Company.