

The Effectiveness of Repeat Reading in Improving Reading Fluency and Comprehension Among Elementary School Students: A Single-Case Study

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ABSTRACT

This study aimed to analyze changes in reading ability following a "repeated reading" intervention for an elementary school student whose reading difficulties were impacting academic performance. A single-case study design was employed, incorporating pre-intervention, post-intervention, and follow-up measurements. Initial assessments included observations, interviews, an analysis of academic records, the WISC, and informal tests of reading and comprehension. Assessment results revealed deficits in reading fluency, accuracy, prosody, and comprehension, alongside task-avoidance behaviors and poor reading habits at home. The intervention spanned 12 sessions and combined psychoeducation, repeated reading, parental guidance, and teacher psychoeducation. Descriptively, the mean reading speed increased from 41.64 to 57.96 words per minute (+39.2%), while mean accuracy rose from 93.10% to 97.51% (+4.41 percentage points). Mean comprehension improved from 33.33% to 90.00% (+56.67 percentage points). At the follow-up stage, most improvements were sustained, with a mean speed of 66.36 words per minute and 98.32% accuracy across five reported texts. These results align with current research evidence indicating that structured, explicit, and repetitive reading fluency interventions can enhance reading performance. However, as the study involved only a single case without a control group, the findings cannot be used to draw general conclusions regarding causal relationships.

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1. INTRODUCTION

Reading ability is a crucial foundation for academic success because nearly all learning in schools uses text as a medium for acquiring, processing, and integrating information. In the context of reading difficulties, reading fluency relates not only to

speed but also to accuracy and expression/prosody; fluency serves as a bridge between decoding skills and reading comprehension [1], [2].

Empirical evidence suggests that explicit and systematic literacy interventions, particularly those integrating code and

meaning dimensions and delivered individually or in small groups, can improve reading skills in elementary school students with reading difficulties. In the upper elementary grades, standardized protocols, multicomponent interventions, and longer durations have also been reported to be associated with stronger effects [3], [4]. Furthermore, interventions specifically targeting reading fluency demonstrated moderate overall effects in a meta-analysis, with an overall effect size of 0.46 [1].

Repeated reading is a relevant approach because students read the same text multiple times with guidance and feedback, thus providing an opportunity to improve word recognition automation, speed, accuracy, and expression. Recent evidence suggests that repeated reading interventions can support reading fluency in students with reading difficulties; components such as fluent reading modeling, paired repeated reading, multisyllabic word previews, and comprehension questions can be used as part of the intervention [2], [5]. Research with elementary school students also suggests that interventions that combine fluency and comprehension practice can improve overall reading outcomes [6].

This case study depicts a fourth-grade student who has experienced low learning outcomes since first grade, is slow to complete assignments, has difficulty understanding reading-based questions, and exhibits off-task behavior in class. Because reading difficulties can potentially impact multiple subjects, interventions are needed that not only focus on the child but also modify learning support at home and school.

Problem Formulation and Objectives

The formulation of the research problem is: can repeat reading intervention combined with psychoeducation and environmental support improve fluency, accuracy, reading comprehension, and reading habits at home in elementary school students with reading difficulties?

The aims of the study were (1) to describe the profile of reading difficulties

based on multimethod assessment, (2) to evaluate changes in reading speed, accuracy, and comprehension after intervention, (3) to evaluate changes in reading habits at home, and (4) to discuss supporting factors and limitations of the intervention.

2. METHODS

2.1 Design

This study used a single-case study with a baseline–intervention–follow-up measurement pattern. The unit of analysis was one elementary school student. Because there was no control group and no randomization, the analysis focused on descriptive intra-case changes and clinical-psychological interpretations.

2.2 Research Subjects

The subject of this study was a male fourth-grade elementary school student, approximately 9 years old at the time of the assessment. For this article, personal identification, address, and other information that could lead to direct identification are omitted. The article uses the initials/label 'F' to represent the client's identity.

2.3 Assessment Procedures

The research assessment included interviews with the mother and several teachers, classroom and community observations, report card analysis, the WISC test, and informal reading and comprehension tests. The data indicated that the client experienced reading difficulties characterized by word repetition, omission/substitution, word-for-word reading, ignoring punctuation, losing track of reading, and difficulty answering questions and summarizing text content.

The WISC results in the report show a Full Scale IQ of 85, a Verbal IQ of 86, and a Performance IQ of 87. A one-point difference in verbal and performance scores indicates a relatively balanced profile. These results are used as the context for the assessment and not as the sole basis for explaining reading difficulties.

2.4 Intervention

The intervention consisted of three main components. First, psychoeducation and counseling for parents to improve understanding of reading issues, the role of mentoring, study schedules, and the use of positive reinforcement. Second, psychoeducation for teachers regarding student conditions, off-task behavior, learning support, and the use of repeated reading. Third, direct intervention with students through psychoeducation and repeated reading training over 12 sessions.

In the comprehension session, students read the text orally three times and were then asked to retell the content. In the fluency session, students read the text three times, focusing on increasing speed without sacrificing accuracy. The intervention also included instruction in punctuation, intonation, attention to words, and eye movement strategies. Parents were asked to continue reading support at home.

2.5 Instruments and Result Indicators

The primary outcomes consisted of (a) reading speed in words per minute, (b) accuracy of words read in percent, and (c) reading comprehension in percent correct answers. An additional behavioral outcome was reading/study intensity at home. Speed was calculated as the number of words read divided by the duration in seconds multiplied by 60; accuracy was calculated as the number of correct words divided by the total number of words multiplied by 100; and comprehension was calculated as the number

of correct answers divided by the number of questions multiplied by 100.

2.6 Data Analysis

Analyses included descriptive statistics (mean and standard deviation), absolute change, percentage change, and an examination of the continuity of change at follow-up. For single-case studies, group significance tests were not prioritized because $n=1$; the use of parametric tests on a single client may give an inappropriate impression of statistical certainty. Change was understood as intra-case evidence that needed to be confirmed through replication or a more robust single-case experimental design.

3. RESULTS AND DISCUSSION

3.1 Problem Profile

Prior to intervention, the client experienced consistent difficulties across four domains: reading habits, word recognition, comprehension, and prosody. He tended to refuse to read, read aloud, point to words with his finger, omit or substitute words, hesitate on unfamiliar words, and had difficulty finding the main idea and answering reading questions. These difficulties were associated with delays in completing academic assignments and off-task behavior in class.

Academic data shows cross-subject problems, while more practical subjects are relatively preferred and can be tackled more quickly. In fourth grade, Indonesian language scores were recorded below the Minimum Competency (KKM), in line with the finding that reading assignments became more difficult for students.

3.2 Functional Analysis

Component	Main findings
Antecedent	Reading activities, reading-based practice questions, homework, and classroom situations that are considered noisy/attention-grabbing.
Response	Slow and inaccurate reading, procrastinating on tasks, walking/talking, losing track of reading, and difficulty answering questions.
Consequences before intervention	Inconsistent support at home; refusal to learn tends not to be accompanied by consistent demands; teachers give warnings.
Protective factors	Good relationships with students, cooperation between teachers and mothers, the desire to become more fluent readers, and school support.
Risk factors	Low reading habits, low learning motivation, perception of reading as boring, limited previous academic support.

3.3 Changes in Reading Speed

Text	Pre (kpm)	Post (kpm)	Follow-up (kpm)
1	42.69	55.00	65.41
2	42.37	68.24	68.94
3	40.78	51.18	62.50
4	43.23	63.22	69.61
5	39.06	46.75	65.36
6	41.72	63.40	—
Average	41.64	57.96	66.36

The mean rate increased by 16.32 words/minute, or approximately 39.2%, from baseline to post-test. The five texts with follow-up data showed an average of 66.36 words/minute, higher than both the baseline and post-test averages. However, because the

follow-up texts were not all equal in number to the baseline/post-test in the available data, the follow-up comparison should be read as a descriptive analysis of the reported data, not a fully paired estimate of the effect.

3.4 Changes in Reading Accuracy

Text	Pre (%)	Post (%)	Follow-up (%)
1	94.4	97.9	98.3
2	93.9	98.0	98.2
3	92.5	97.7	98.7
4	94.8	97.45	98.3
5	93.0	97.7	98.1
6	90.0	96.3	—
Average	93.10	97.51	98.32

Mean accuracy increased by 4.41 percentage points, from 93.10% to 97.51%. At follow-up, the five reported texts averaged 98.32%. This change aligns with process

observations that clients pointed to words less frequently, were better able to pay attention to punctuation, and still needed practice to reduce missed words.

3.5 Changes in Reading Comprehension

Text	Pre (%)	Post (%)	Follow-up (%)
1	40	100	60
2	60	100	100
3	40	80	40
4	20	80	60
5	20	100	100
6	20	80	—
Average	33.33	90.00	72.00

Mean comprehension increased from 33.33% to 90.00%, an increase of 56.67 percentage points. At follow-up, the reported mean for the five texts was 72.00%. Although the follow-up mean was lower than the post-

test, all follow-up scores remained higher than baseline for most texts, and interview reports indicated that clients were better able to answer questions and understand the reading content.

3.6 Changes in Reading Habits at Home

Phase	Proportion of days with reading/study activities	Information
Baseline	0%	There was no routine schedule during the baseline period.
Intervention	70%	Start to form a schedule and duration of 30–60 minutes on some days.
Follow-up	100%	Reading schedules were more consistent; durations ranged from 45–60 minutes on reported days.

Behavioral changes at home are an important outcome because the intervention not only improves technical skills but also changes opportunities for practice. At follow-up, the mother reported that the client had a regular reading schedule, used picture/color

storybooks, and implemented repeat reading. Teachers also reported improved homework submission and learning progress, although the client still needed more time than her classmates.

3.7 Quantitative Analysis of Change

Indicator	Average baseline	Post-test mean	Absolute change	Relative change
Reading speed (wpm)	41.64	57.96	+16.32	+39.2%
Reading accuracy (%)	93.10	97.51	+4.41 pp	+4.7%
Understanding (%)	33.33	90.00	+56.67 pp	+170.0%

The analysis revealed a consistent pattern of change across the three primary outcomes. The relative magnitude of comprehension improvement was greatest due to the very low baseline; therefore, the relative percentage change should be interpreted alongside the absolute change. Mean speed increased by 16.32 words/minute (+39.2%), accuracy increased by 4.41 percentage points (+4.74%), and comprehension increased by 56.67 percentage points (+170%) from baseline to post-test. These magnitudes of change support the notion that repeated practice provides intensive practice opportunities, but cannot be considered a measure of experimental effect size. The literature indicates that practice opportunities and intervention dosage are related to reading fluency growth [1].

For single-case designs, data should be interpreted as evidence of intra-individual change. Paired t-tests or ANOVAs were not performed because the intervention unit was only one individual, and the texts could not be treated as independent participants. Treating six texts as six subjects would result in pseudoreplication. A more robust analysis for

future research would be an ABA/B, multiple-baseline, or single-case experimental design with weekly measurements and visual/nonoverlap analyses supplemented by statistical models if the number of observations is sufficient.

3.8 Discussion

The main findings of this study were improvements in reading fluency, accuracy, and comprehension following a repeated reading intervention combined with psychoeducation and environmental support. In this study, mean reading speed increased from 41.64 words/minute at baseline to 57.97 words/minute at post-test, while accuracy increased from 93.10% to 97.51%. Mean comprehension increased from 33.33% to 90.00%. This pattern is conceptually consistent with the literature that positions fluency as a result of the automation of basic reading skills and as a link between decoding and comprehension [1], [2]. However, because this study used a single case without a control group, these changes are treated as evidence of intra-individual change and not as estimates of generalizable causal effects.

The improvement in this case is also consistent with evidence from intervention studies. [1] meta-analysis of 33 studies found a moderate overall effect of reading fluency interventions, with an effect size of 0.46 (95% CI [0.23, 0.68]). This finding supports the use of targeted fluency training, although the magnitude of change in a single case cannot be directly compared with meta-analytic effect sizes. [6] study of 186 children aged 7–9 years also showed that targeted fluency and comprehension instruction in small groups for at least 12 weeks resulted in improvements in overall reading scores. Thus, the improvement in this case aligns with the direction of empirical evidence, particularly when fluency training is accompanied by comprehension-demanding activities.

Follow-up findings showed that changes did not completely stop after the intervention session. Across the five texts for which follow-up data was available, the mean reading speed reached 66.36 words/minute and the mean accuracy reached 98.32%. For comprehension, the mean follow-up score was 72.00%, lower than the post-test score of 90.00%, but still higher than the baseline score of 33.33%. This variation is important because it suggests that responses to intervention are not always linear and that a single post-test measurement is insufficient to conclude skill maintenance. The literature also suggests that the dose and duration of intervention are important factors in the growth of reading fluency [1].

Teacher and parent involvement has the potential to be a supporting factor for sustainable change. In the case report, parents implemented a reading schedule at home and used repeated reading, while teachers continued repeated reading practice at school. This pattern aligns with literature recommendations that interventions for students with reading difficulties should be explicit, systematic, and consistent and can combine multiple learning components [3]. The study by [6] also demonstrated the importance of implementing targeted and consistent interventions to support reading outcomes. Because the case data did not separate the contributions of each component,

the effects of repeated reading, psychoeducation, parental support, and teacher support cannot be estimated separately.

However, improvement should not be interpreted as evidence that clients have reached a reading level comparable to their peers. At follow-up, teachers still reported that clients needed additional practice and needed more time to complete assignments. This aligns with review findings that responses to reading interventions are individualized, and further research is needed to understand student characteristics and the implementation conditions that produce the most optimal response [3], [7], [8]. Furthermore, evidence from repeated reading suggests that increased fluency does not necessarily translate into improved comprehension in all students, so comprehension needs to be measured as a separate outcome [3].

The WISC profile in the report indicates general intellectual ability in the lower-average range, but reading difficulties cannot be accurately reduced to a consequence of IQ alone. In this case, reading problems are manifested through specific patterns of slowness, word errors, poor prosody, difficulty following punctuation, losing position while reading, and difficulty answering comprehension questions. A multimethod assessment approach is essential because literacy interventions need to be tailored to the student's profile, not based solely on a single indicator of general ability. Literature reviews of literacy interventions also emphasize the importance of understanding individual differences in response to intervention [3].

3.9 Practical Implications

First, assessments of students with low academic achievement need to separate reading problems from motivational or behavioral issues. Second, reading practice should use texts appropriate to the child's ability level and provide immediate feedback. Third, repeated reading can be combined with comprehension questions, main idea identification, retelling, vocabulary, prosody,

and positive reinforcement. Fourth, families need to set regular reading times and select reading materials that are interesting to the child. Fifth, teachers and parents need to use the same targets and conduct regular monitoring.

3.10 Limitations

- 1) The design involved only one student so generalization to the population of students with reading difficulties should be done with caution.
- 2) There was no control group or long baseline condition so the effects of maturation, training, and external factors cannot be completely separated from the effects of the intervention.
- 3) The baseline, post-test, and follow-up texts do not all have the same number of measurements in the report data, so the follow-up analysis is descriptive.

Long-term academic outcomes have not been measured with standardized instruments after the intervention.

4. CONCLUSION

A repeated reading intervention combined with student psychoeducation, parent support, and teacher psychoeducation demonstrated positive changes in one elementary school student with reading difficulties. Descriptively, reading speed, accuracy, and comprehension improved from baseline to posttest, while most of the changes remained at follow-up. Home reading habits also significantly improved. These results support the use of repeated reading as a component of reading fluency interventions, but are insufficient to establish a general causal effect. Future research should utilize single-case experimental designs or comparison groups, more standardized measures, and longer follow-up.

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