

A Meta-Analysis of Non-Repetitive Reading Fluency Interventions for Students with Reading Difficulties

eTale 2022



This meta-analytic review investigated non-repetitive reading fluency interventions for K-12 students with reading difficulties. Results indicated that non-repetitive reading fluency instruction may be a feasible approach for students with reading difficulties.

Authors: Leah M. Zimmermann, Deborah K. Reed, & Ariel M. Aloe

Source: Zimmermann, L.M., Reed, D.K., & Aloe, A.M. (2019). A meta-analysis of non-repetitive reading fluency interventions for students with reading difficulties. *Remedial and Special Education*, 1–16. DOI: 10.1177/0741932519855058

This meta-analytic review investigated non-repetitive reading fluency interventions for K-12 students with reading difficulties. Eight studies met the inclusion criteria. The overall multivariate weighted average standardised mean difference with robust variance yielded an improvement of less than 0.2 SD ($d = 0.176$) for non-repetitive reading fluency interventions. However, results were positive and statistically significant. The moderator analysis revealed that the effect on comprehension outcomes ($d = 0.239$) was

slightly larger than fluency outcomes ($d = 0.105$). Studies comparing repeated reading and non-repetitive reading fluency interventions produced reading outcomes similar in magnitude. Results indicated that non-repetitive reading fluency instruction may be a feasible approach for student with reading difficulties.

- Oral reading fluency (defined as the ability to read with appropriate accuracy, speed, and prosody) is a critical component for the development of skilled reading.
- Fluent, effortless reading allows for attending to the meaning of texts, rather than focusing on word recognition.
- Students with reading difficulties are more likely to struggle with fluent oral reading than their typically achieving peers.
- Reading fluency difficulties often negatively affect other reading skills, such as reading comprehension and vocabulary acquisition.

Repeated reading

- Repeated reading involves students reading a grade-level text multiple times in succession to complete a prescribed number of readings or to reach a certain fluency criterion.
- As students reread an assigned text, they not only are exposed to new words and uses of words in a variety of sentences but they also experience multiple exposures to those words and sentences that allow for rehearsal and refinement of skills.
- This is particularly true in the presence of error correction in which an interventionist provides correct pronunciations for any words a student reads incorrectly.

Non-repetitive reading

- Interventions in which students read one or more texts without engaging in additional readings of those texts are referred here to collectively as non-repetitive reading.
- When actively processing a series of passages, students are exposed to more new words than when they reread a single passage.
- The variation in syntax and semantics across non-repetitive readings may also require students to attend closely to the individual words in the text.
- The combination of having a greater variety of reading experiences and needing to attend to the new words and arrangement of words may facilitate transferring acquired fluency skills to unpractised texts.
- Non-repetitive reading interventions can be divided into two broad categories: wide reading and independent reading.



Study

This study sought to address the existing gap in the literature by contributing information on the effectiveness of non-repetitive reading fluency interventions.

Research questions:

1. *What are the common components of non-repetitive reading fluency interventions?*
2. *What is the overall effect of non-repetitive reading on*

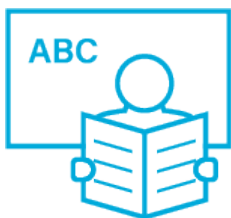
the oral reading fluency of students with reading difficulties?



Findings

- Total sample sizes across the studies varied from 17 to 155 (median = 35), with 4 of the 8 studies having fewer than 30 participants.
- The duration of interventions ranged from 6 to 20 weeks.
- Most studies implemented brief but frequent sessions of 15 to 20 min, 3 times per week.
- Seven of the eight studies were categorised as wide reading.
- Continuously reading for a set amount of time was included in four studies.
- Reading the assigned texts to conclusion was the intervention in three studies.
- Only one study implemented independent reading intervention.
- Four of the studies paired students with a trained adult tutor for one-on-one instruction.
- Two studies paired students within the intervention to alternate roles as either reader or tutor.
- One study employed small-group instruction with groups of six.
- The most common fluency skills assessed were accuracy and rate of students' oral reading; however, silent reading fluency also was assessed in two studies.
- Although all studies found at least some positive effects of the non-repetitive reading interventions on student fluency ($g = 0.01$ – 2.05), these were accompanied by wide confidence intervals (CIs).

- Of the seven studies that reported at least one comprehension outcome, at least some positive effects ($g = 0.04-3.13$) were found for six wide reading interventions, although they had wide CIs.
- The 8 studies included provided 56 standardised mean differences.
- The overall multivariate weighted average estimation yielded an effect of $d = 0.176$. This suggests a less than 0.2 SD of improvement, but results were positive and statistically significant.
- The multivariate weighted average standardised mean differences with robust variance estimation for fluency was 0.105.
- The multivariate weighted average standardised mean difference with robust variance estimation for comprehension was 0.239.



Conclusions and implications

Seven of the eight studies in the corpus implemented a form of wide reading, and four of these had students read continuously for a set amount of time, while three had students read assigned texts to completion. Most of the interventions held 15 min sessions and 3 sessions per week. The intervention length varied from 6 to 20 weeks, and it may be that interventions of longer durations might be necessary to evaluate treatment effectiveness more effectively. Students who received the unstructured sustained silent reading intervention were outperformed by their peers who did not participate in the fluency intervention. This was one of the

few effect sizes that was found with a CI not crossing a 0 value. Thus, simply providing more time to read may not be a reliable way to improve students' fluency. Non-repetitive reading has a small effect on student outcomes. Based on the results of this review, non-repetitive fluency interventions seem to be an equally plausible means of intervening with students experiencing reading difficulties.