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Providing Reading Interventions to Struggling Readers in Grades 1–3: What Does High-Quality Intervention Research Tell Us?
A Policy Brief

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Providing Reading Interventions to Struggling Readers in Grades 1–3: What Does High-Quality Intervention Research Tell Us?
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The purpose of this brief is to present an overall picture of how well early reading interventions are working for students in Grades 1–3. Using a meta-analytic approach, this paper combines findings from several studies to determine the effectiveness of early reading interventions for students who are struggling with learning to read.

Why is a synthesis of rigorous studies on reading interventions needed?

Multi-Tiered System of Support (MTSS), also known as Response to Intervention (RtI), are used routinely in American elementary schools. Federal legislation requires that schools use evidence-based practices to help students who are at risk for reading difficulties or disabilities.[1] While No Child Left Behind Act of 2001[2] allowed for any intervention that used principles derived from the scientific research on reading, the Every Student Succeeds Act of 2015[3] explicitly calls for schools to use evidence-based interventions.

Unfortunately, the negative results of a recent national evaluation of early reading interventions left schools with significant questions about whether the evidence-based practices they are using are actually working.[4] School and district administrators who make decisions about which reading interventions to adopt are in a difficult position—on the one hand, they are required to adopt interventions that include practices that have been found to be effective, and yet, these very practices were recently studied and found to have little impact on students' reading performance.

Given the widespread adoption of MTSS in reading and the unsettling finding from the national evaluation, school and district administrators need help unpacking the body of research relevant to MTSS in reading. This brief summarizes the findings from several studies to help educational decision-makers make informed decisions.

What does 15 years of contemporary research tell us about the effectiveness of reading interventions?

The findings from this meta-analysis of 33 rigorous high-quality studies indicate that reading interventions in general are effective for students in Grades 1 to 3, and they benefit students more in foundational reading skills than in reading comprehension. Because so many interventions are similar, and virtually all are effective in word reading, there is a decent array to choose from. Common features are explicit instruction, modeling, feedback, and interactive small-group instruction.

The findings also indicate that students' reading performance may be impacted by some variables such as whether the interventions are scripted or not, who provides the intervention, and whether the student receives the intervention in a small group or individually. These findings provide some

direction to LEA's and SEA's on what to consider when providing reading intervention to their struggling students.

Recommendations for Policy and Practice

1. *Intervene early and provide explicit instruction in reading to students who are struggling with reading in Grades 1 to 3.*
2. *Provide at least three 20-minute intervention sessions a week, for at least 8 weeks.*
3. *Choose interventions that include vocabulary, reading comprehension, and listening/oral language comprehension (via read-alouds) instruction, as well as decoding and fluency building activities.*
4. *For Grade 1, provide interventions individually (1 intervention provider works with 1 student), rather than in small groups (1 intervention provider works with 2–5 students).*
5. *Use either paraprofessionals or certified teachers to provide reading interventions in Grade 1 when the focus is on decoding. However, when the focus is on reading comprehension, as in Grades 2 and 3, consider using certified teachers.*
6. *Regularly observe the person providing the intervention and provide constructive feedback on their approach.*

How was the meta-analysis done?

Comprehensive literature search. To locate potentially eligible studies, a comprehensive literature search was conducted in the following manner:

- A keyword search of electronic databases was performed.
- Recommendations of studies likely to meet eligibility criteria were solicited from key researchers.
- The references of meta-analyses, literature reviews focused on reading interventions for Grades 1–3, and What Works Clearinghouse (WWC) intervention reports in the beginning reading topic area were reviewed and cross-referenced.

The search resulted in the identification of 2,423 publications.

Screening and review. Studies were screened for eligibility. Every eligible study was reviewed against WWC standards. The WWC uses a structured review process to assess the causal validity of findings reported in education effectiveness research. Ultimately, a set of 33 rigorous experimental and quasi-experimental studies conducted between 2002 and 2017 that met WWC standards were examined.

Meta-analysis. A meta-analysis combines and summarizes research using parametric statistical procedures. Hedges' *g* standardized mean difference effect sizes were calculated, and random effects robust variance estimation techniques were used to aggregate average weighted effect sizes.

To better understand the relationship between the reading interventions and effect size, a series of analyses were conducted to explore how student, intervention, and study characteristics influenced the impact.

What were the findings from the meta-analysis?

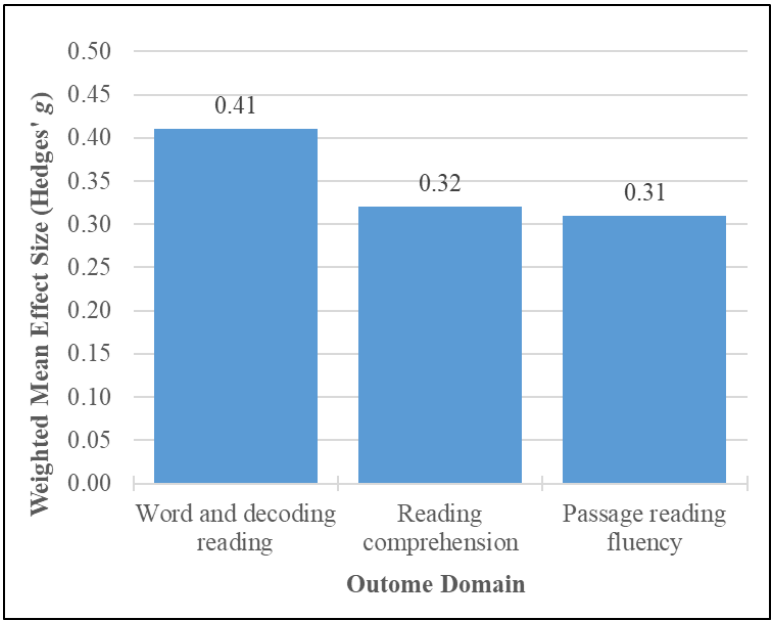
Descriptive findings. In many respects, the interventions appeared to be similar, although session length, group size, and amount of training for the interventionist varied. A mix of teachers, paraprofessionals, and research staff administered the interventions. All but two interventions fit the idea of extremely systematic, explicit instruction in phonics reading and passage reading fluency, and in many cases, for Grade 1, phonological awareness. Virtually all addressed comprehension in some fashion, although few provided much in the way of detail.

Though training varied across the studies, most interventionists were carefully monitored. Closely monitoring interventionists is likely not typical practice for school implementation. Thus, low implementation fidelity may have been a factor in the lack of significant positive impacts in the national evaluation.[5]

Impact of reading interventions. Students from Grades 1, 2, and 3 who score in the at-risk category on a screening battery do significantly benefit from the wide array of interventions provided, especially in the area of learning how to read words. Early interventions (particularly in Grade 1) lead to significant positive effects in word and pseudoword reading and in reading comprehension.

- The average effect size (Hedges' *g*) for these studies was 0.39 ($p < .001$), indicating that the reading interventions were, in general, moderately effective across students, settings, and measures.
- The largest effects were on word and decoding reading outcomes ($\beta = 0.41$, $p < .001$). Slightly smaller effects were found on reading comprehension outcomes ($\beta = 0.32$, $p < .001$), followed by passage reading fluency outcomes, which generated the smallest effect size ($\beta = 0.31$, $p < .001$). These impacts are, on average, in the moderately low to moderate range, indicating that, when properly implemented, the interventions are likely to result in positive impacts for this group of students in word reading, passage reading fluency, and comprehension. See Figure 1.

Figure 1. *Impact of Reading Interventions*



Variables that might change the impact of reading interventions. Effects did differ depending on whether the intervention was delivered individually (one student and one interventionist) or in small groups (2-5 students to 1 interventionist), whether the intervention was scripted, or whether the person who delivered the intervention was a paraprofessional or a certified teacher.

- Across all grade levels, reading interventions delivered individually yielded larger effect sizes than studies that were delivered in small group of students (β = -0.13, p = .07). However, this effect was significant for only Grade 1 (β = -0.16, p < .05).

- Studies of scripted reading interventions generated smaller effect sizes than studies with unscripted interventions (β = -0.13, p = .09).

- Across all reading outcomes (i.e., measures of word or pseudoword reading, passage fluency, and reading comprehension), who implemented the intervention (i.e., paraprofessional or certified teacher) did not significantly change the impact (β = 0.06, p = .15). However, for reading comprehension outcomes, interventions implemented by paraprofessionals generated, on average, lower effect sizes, while those taught by certified teachers yielded higher effect sizes (β = 0.21, p =.03).

Endnotes

[1] For example, the Every Study Succeeds Act of 2015.

[2] No Child Left Behind Act of 2001 [NCLB], Pub. L. No. 107-110, § 1201, 115 Stat. 1425 (2002).

[3] Every Student Succeeds Act of 2015, Pub L. No. 114-95, § 114 Stat. 1777 (2015).

[4] Balu, R., Zhu, P., Doolittle, F., Schiller, E., Jenkins, J., & Gersten, R. (2015). *Evaluation of response to intervention practices for elementary school reading* (NCEE 2016-4000). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from http://ies.ed.gov/ncee.

[5] Balu, R., Zhu, P., Doolittle, F., Schiller, E., Jenkins, J., & Gersten, R. (2015). *Evaluation of response to intervention practices for elementary school reading* (NCEE 2016-4000). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from http://ies.ed.gov/ncee.