



AN UPDATED REVIEW OF IMPLEMENTATION FIDELITY AND INSTRUCTIONAL ALIGNMENT ACROSS MULTI-TIERED SYSTEM OF SUPPORTS

Iowa Reading Research Center

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Rationale

Multi-Tiered System of Supports in Reading (MTSS-R) is a widely used schoolwide framework for organizing literacy instruction and intervention. In this tiered framework, Tier 1 provides high-quality, evidence-based reading instruction for all students, whereas Tier 2 supplements and intensifies that instruction. The effectiveness of MTSS-R depends largely on the quality, consistency, and coordination of instruction across these tiers.

Hill and colleagues (2012) identified two key features for evaluating the Tier 1 context in intervention research: implementation fidelity and instructional alignment. *Implementation fidelity* refers to the extent to which instruction is delivered as intended, including adherence to procedures, appropriate dosage, quality of delivery, and student engagement. *Instructional alignment*, on the other hand, refers to the degree to which Tier 1 and Tier 2 instruction share common content, instructional methods, and goals.

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We extend this framework through a systematic review of research on implementation fidelity and instructional alignment in Tier 2 reading interventions in MTSS-R. This research is part of the Iowa Reading Research Center's Measure FIRST project, which aims to support MTSS teams engaged in data-based decision-making by providing tools and guidance for measuring fidelity of instruction or intervention. More information on the project can be found on the [Measure FIRST webpage](#). For additional reporting on this project, see King et al. (2026) and Young et al. (in press).

Key Findings

This systematic review examined 35 experimental studies on literacy interventions in Grades K–5 and identified the following findings:

- Reporting of Tier 2 intervention fidelity has increased since the previous review (Hill et al., 2012). Many studies provided information regarding the instructional alignment between Tiers 1 and 2, detailing the content or structure of Tier 1 instruction to show how Tier 2 instruction complemented it.
- Fidelity reporting for school-implemented Tier 1 instruction was more limited and inconsistent, with fewer than half of the studies reporting detailed information on Tier 1 fidelity, and few studies using standardized tools to assess it. Researchers were more likely to describe Tier 1 instruction when they manipulated it in some way.

- As researchers and practitioners continue to explore ways to measure fidelity of implementation and alignment across tiers within MTSS, the use of standardized measures and protocols may support high-quality data collection in school settings.

Method

Search Procedures

This systematic review used both electronic and ancestral search methods. Electronic searches were completed in APA PsycInfo, ERIC, Education Source, and ProQuest Dissertations and Theses databases with terms related to RTI/MTSS, Tier 1 and Tier 2 instruction, and literacy outcomes. This search identified 7,671 records, of which 3,025 duplicates were removed. The authors then conducted an ancestral search of reference lists from eligible studies published in 2012 or later, which yielded two additional articles.

Screening Procedures

Studies were screened first at the abstract level and then at the full-text level. Abstract screening required studies to be English-language peer-reviewed articles or dissertations published between January 2012 and October 2024, use an experimental design, include students in Grades K–5, and examine a literacy-based intervention. This stage identified 823 studies for full-text review. Full-text screening applied those same criteria and added requirements that studies be conducted in the United States, take place within an RTI or MTSS-R context, include small-group supplemental literacy instruction in addition to core instruction, report original data, and present results specific to Tier 2 intervention. The final sample included 35 studies.

Coding

The coding process captured both general study characteristics and the key constructs of implementation fidelity and instructional alignment. Codes for general study characteristics included participant grade level, sample characteristics, disability inclusion, and whether the intervention targeted reading or writing. Implementation fidelity coding focused on how studies defined, supported, monitored, and reported implementation at Tier 1 and Tier 2, including training, coaching, observation methods, feedback, fidelity checklists, quantitative fidelity scores, and frequency of assessment. Instructional alignment coding examined whether authors described the relationship between Tier 1 and Tier 2 instruction in terms of content, instructional practices, grouping arrangements, and duration, as well as whether descriptions of Tier 1 were supported by systematic data sources such as interviews, surveys, or observations.

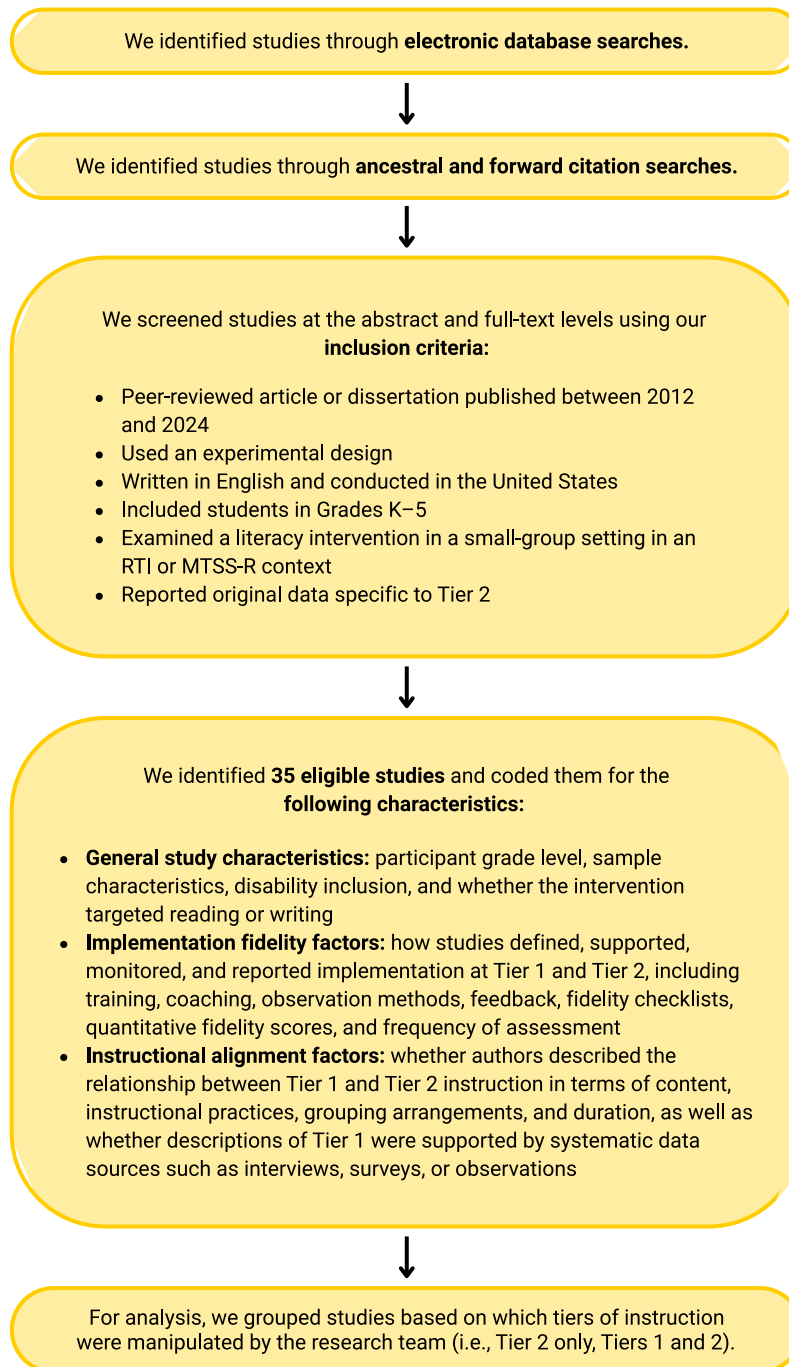
Interrater Agreement

Interrater agreement was assessed throughout both screening and coding. During abstract screening, all studies were double-screened by trained graduate students, and any disagreements were advanced to full-text review. Full-text articles were reviewed independently by the first and second authors, with disagreements resolved by the third author. Average agreement was 92% for abstract screening and 93% for full-text screening. Next, all included studies were double-coded by a team of four coders who were



trained to criterion before coding independently. Overall coding agreement was 95%, based on 916 agreements across 967 total codes.

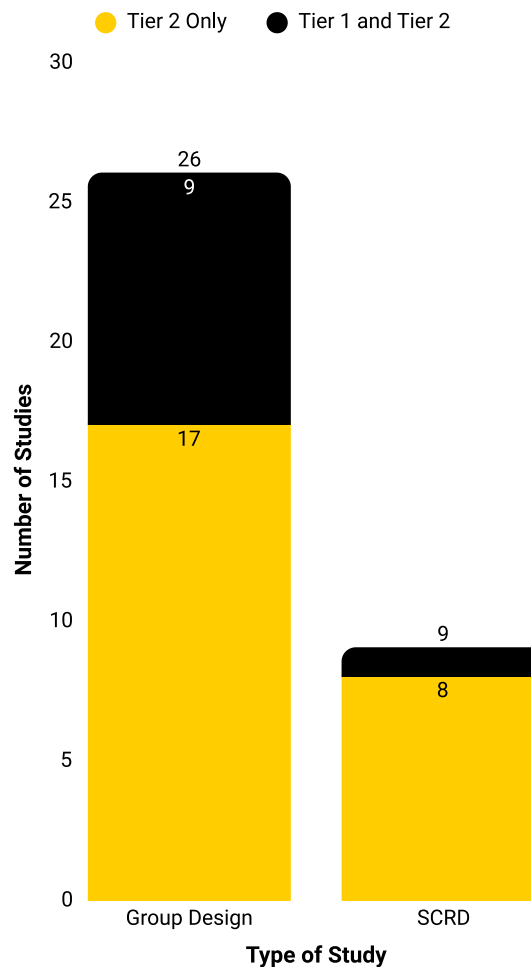
Stages of Systematic Review



Results

The review identified 35 eligible studies. Given that reporting trends tend to differ across research study designs, we grouped these studies based on two design categories: 26 group-design studies and 9 single-case research design (SCRD) studies. Of the group design studies, 17 examined Tier 2 only, and 9 examined both Tiers 1 and 2. Of the SCRD studies, 8 examined Tier 2 only, and one examined both Tiers 1 and 2. Although most interventions addressed reading exclusively, nearly half also included writing outcomes. Most studies focused on students in kindergarten through Grade 3 and used screening procedures to identify students with or at risk for reading difficulties. Many studies included students with disabilities and English language learners.

Classification of Included Studies by Tier of Instructional Implementation (N = 35)

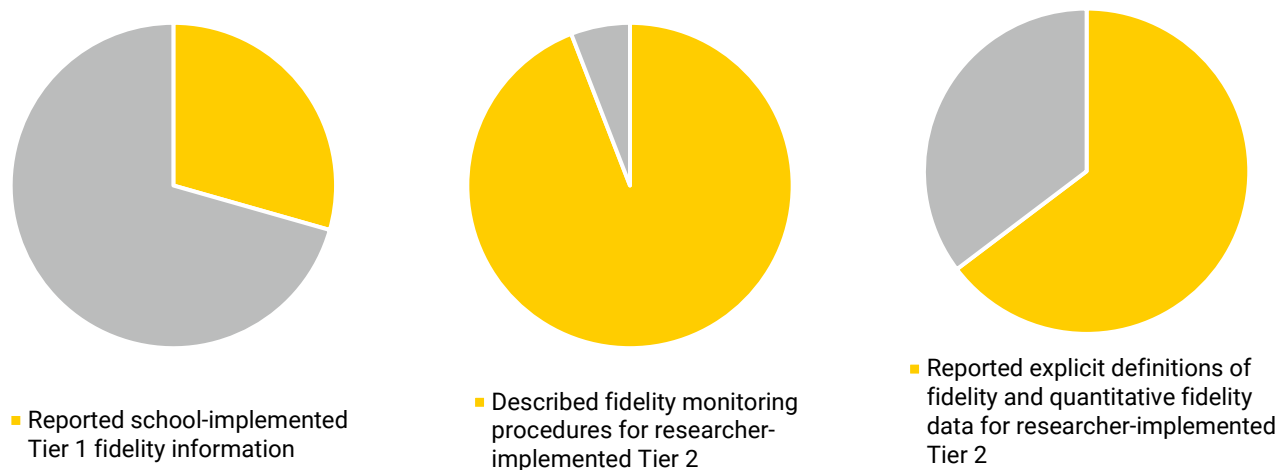


Group-Design Studies

Fidelity

Tier 2 Intervention Studies Only

Among the 17 group-design studies that implemented Tier 2 intervention only, reporting on school-implemented Tier 1 remained limited, particularly with respect to fidelity. Fewer than one-third ($k = 5$; 29.4%) of studies reported any Tier 1 fidelity information, and none described ongoing coaching, professional development, or performance feedback for Tier 1 instructors. In contrast, reporting on researcher-implemented Tier 2 fidelity was much stronger. Nearly all ($k = 16$; 94.1%) studies described fidelity monitoring procedures, and most ($k = 11$, 64.7%) reported explicit definitions of fidelity and quantitative fidelity data. External observation was the primary method used to assess whether Tier 2 intervention was delivered as intended. Standardized observation tools, however, were used infrequently.



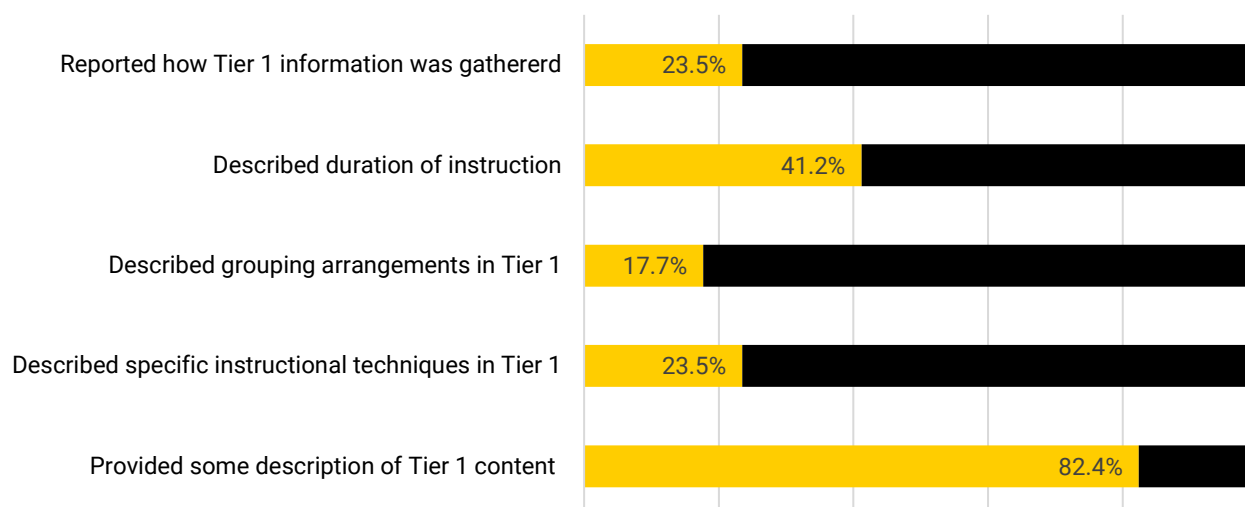
Tier 1 and 2 Intervention Studies

In the 9 group-design studies that implemented instruction across Tier 1 and Tier 2, reporting was more comprehensive for fidelity. About two-thirds ($k = 6$, 66.7%) of these studies reported at least one indicator of school-implemented Tier 1 fidelity, and more than half ($k = 5$; 55.6%) defined fidelity, monitored implementation, and reported fidelity scores. Researcher-implemented Tier 1 was documented more thoroughly than school-implemented Tier 1, with all studies reporting training procedures and most providing monitoring and quantitative fidelity information. Fidelity reporting for researcher-implemented Tier 2 was consistently strong, with all studies describing staff training and all monitoring implementation through observation or self-report.

Alignment

Tier 2 Intervention Studies Only

Reporting on alignment between Tiers 1 and 2 was more common than reporting on Tier 1 fidelity. Most studies ($k = 14$, 82.4%) of the 17 total in this category provided at least some description of Tier 1 content, which allowed readers to infer how Tier 2 intervention related to core instruction, but fewer studies described specific instructional techniques ($k = 4$; 23.5%), grouping arrangements ($k = 3$; 17.7%), or the duration of instruction ($k = 7$; 41.2%). In addition, only a small number ($k = 4$; 23.5%) of studies reported how Tier 1 information was gathered, suggesting that alignment was often described in general terms rather than documented through systematic measurement.



Tier 1 and 2 Intervention Studies

Across the nine studies in this category, more than half ($k = 6$; 66.7%) described the overall duration of instruction and, less frequently, the duration ($k = 6$; 66.7%), grouping ($k = 3$; 33.3%), and specific instructional techniques used ($k = 1$; 11.1%) in school-implemented Tier 1. When researchers implemented Tier 1 directly, alignment reporting was especially detailed, with all studies describing instructional content and practices and most reporting grouping arrangements and total instructional time. Overall, the findings suggest that fidelity and alignment were reported more fully when researchers were actively involved in Tier 1 instruction, whereas school-implemented Tier 1 remained less consistently documented across the broader evidence base.

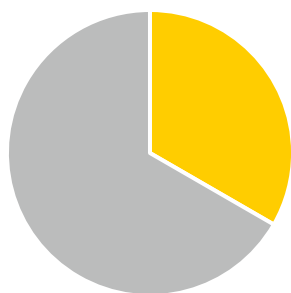
Single-Case Research Design Studies

The SCRD studies review produced a more pronounced version of the same patterns. The findings from SCRD studies are especially notable because single-case methods can support extended contextualization. Their small scale and repeated measurement make them well-suited to teacher interviews, structured observations, and ongoing documentation of typical classroom instruction.

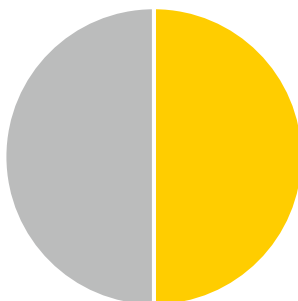
Across the nine included studies, eight implemented interventions at Tier 2 only (89%), and one study, Boulos (2016), implemented instruction at both Tiers 1 and 2.

Fidelity

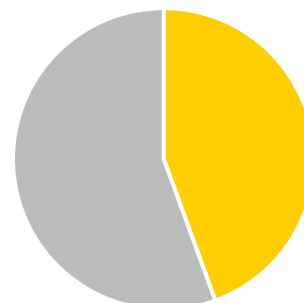
Fidelity reporting for researcher-implemented Tier 2 was generally strong. Eight of the nine (89%) studies described interventionist training, eight used external observation or self-report to monitor implementation, eight reported fidelity scores, and eight reported the frequency of fidelity monitoring. At the same time, ongoing implementation supports were less consistently described, with coaching reported in 3 (33.3%) studies and feedback in 4 (44.4%) studies. Of the eight studies that reported fidelity scores, half also explained how the scores were calculated. Reporting on Tier 1 instruction was almost entirely absent.



■ Coaching reported in researcher-implemented Tier 2



■ Reported how fidelity scores were calculated in researcher-implemented Tier 2



■ Feedback reported in researcher-implemented Tier 2

Alignment

Across all reviewed studies, no authors provided information sufficient to evaluate the fidelity of school-implemented Tier 1 instruction or to assess alignment between Tier 1 and Tier 2. The only partial exception was Boulos (2016), who described elements of a researcher-implemented Tier 1 program, including curriculum and instructional techniques; however, even in this case, descriptions were limited and did not allow for systematic comparison across tiers.

Discussion

Findings from this review indicate that reporting of Tier 2 intervention fidelity has improved since the Hill et al. (2012) review. Similarly, many studies provided at least some information about instructional alignment between Tier 1 and Tier 2. In most cases, authors described enough about the content or structure of instruction to give some sense of how Tier 2 intervention fit within the broader MTSS-R framework. This reflects a growing recognition that Tier 2 intervention should be understood in relation to the classroom instruction students are already receiving, rather than as an isolated support.

In contrast, reporting on school-implemented Tier 1 instruction remained limited and inconsistent. Fewer than half of the studies reported extended information about Tier 1 fidelity, and only a small number used standardized tools to assess it. Studies were more likely to describe Tier 1 instruction when researchers were directly involved in implementing or modifying classroom instruction across tiers.

These findings have important implications for both research and practice. Without clearer information about the quality of Tier 1 instruction and the alignment across tiers, it is difficult to determine whether outcomes are attributable to Tier 2 intervention, Tier 1 instruction, or the interaction between the two. More consistent and transparent reporting of Tier 1 fidelity and cross-tier alignment would improve interpretation of intervention effects and support stronger decisions about the design, implementation, and evaluation of MTSS-R literacy interventions. The use of standardized observation tools, such as the Instructional Content Emphasis-Revised (ICE-R; Edmonds & Briggs, 2003) and the Explicit Instruction Observation protocol (Johnson et al., 2017) may support this endeavor.

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