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RESEARCH ARTICLE

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# Implementing Integrated Multitiered System of Supports: A Retrospective Study

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## ABSTRACT

Over the past 20 years, multitiered system of supports (MTSS) implementation has become widespread in schools across the United States, with increasing focus on integrated MTSS, to address the integrated nature of students' academic, behavioral, social and emotional needs. Using descriptive data from 66 elementary schools across the country about their implementation of integrated MTSS, this paper describes and analyzes ways in which implementation appears to be easy or challenging. The data show that common barriers to implementation of integrated MTSS include limited or inconsistent assessment practices for students' social, emotional and behavioral wellness; lack of implementation fidelity for instruction and intervention; inappropriate use of assessment tools or decision rules when engaging in data-based decision making; and limited incorporation of data about students' language and cultural backgrounds. This analysis can inform policymaking related to integrated MTSS as well as future directions for research.

Keywords: integrated multitiered system of supports, MTSS, data-based decision making, social-emotional behavioral supports, implementation fidelity

Over the past 20 years, multitiered system of supports (MTSS) implementation has become widespread in schools across the United States (Zhang et al., 2023), with increasing focus on *integrated* MTSS (I-MTSS) to address the integrated nature of students' academic, behavioral, and social-emotional needs (Simonsen et al., 2024). A national shift towards I-MTSS can be seen on state department of education websites such as California, Delaware, Florida, Georgia, Illinois, Kansas, Massachusetts, Michigan, Nevada, New York, Ohio, Rhode Island, Texas, and Virginia, all of which specify the need for a tiered system that addresses the comprehensive needs of all students.

In the next section, we provide an overview of the literature on I-MTSS implementation. We then describe the methods for this study, including our research questions, our sample, the Integrated MTSS Fidelity Rubric (IMFR) and how it was used as a data source for this study, and our analytic procedures. Next, we present the descriptive results about implementation successes and challenges, based on the IMFR validation study sample. We conclude with a discussion of these results and implications for research and practice.

## I-MTSS Implementation Literature

MTSS was originally intended to provide a way to interconnect an academic tiered system (e.g., Response to Intervention, or RTI; Fuchs & Fuchs, 2006) with a behavioral tiered system (e.g., Positive Behavior Intervention and Supports, or PBIS; Horner & Sugai, 2015) within one school (Sugai & Horner, 2009). Nationally, all 50 states have adopted a tiered system, with 46 of these states reporting the use of a tiered system that aims to address students' academic and behavioral or social-emotional needs. Further, 45 states call their tiered system MTSS (Zhang et al., 2023). These numbers illuminate not just the prevalence of tiered systems nationally, but also states' recognition of the need for implementing one tiered system that addresses students' comprehensive needs.

In practice, schools and districts struggle to connect their academic and behavioral tiered systems (McIntosh & Goodman, 2016). An example of this is when a group of students receive Tier 2 reading support from one teacher in isolation from when they receive Tier 3 SEB support from another teacher, even though these students all present the same needs across reading and SEB. Another example is when one team reviews SEB progress monitoring data for these students and a different team reviews the students' academic progress monitoring data, rather than the two teams jointly reviewing the data to determine how students are responding to academic and SEB supports (Pierce et al., 2026). These examples illustrate that implementing disconnected academic and behavior tiered systems can be inefficient for staff (Majeika et al., 2024) and more concerningly, ineffective for students (McIntosh & Goodman, 2016). If students do not receive the customized and comprehensive range of supports they need and if staff workloads are siloed or duplicative, schools may want to consider to how evolve their MTSS to be integrated (Pierce et al., 2026).

I-MTSS is a model where academic and social, emotional, and behavioral (SEB) supports are strategically combined to improve students' academic (e.g., reading and/or math) and SEB outcomes (I-MTSS Research Network, n.d.). Research on I-MTSS is growing and compelling studies on I-MTSS and its impact do exist. For example, I-MTSS can improve collaborative data-based decision-making (DBDM) among general and special education teachers, leaders, and specialists (Chaparro et al., 2020; Ervine et al., 2006), and professional learning on I-MTSS has increased educator knowledge and confidence in implementing the framework (Buckman et al., 2026; Lane et al., 2020).

Several studies also indicate that combining academic and behavioral instruction and intervention across Tiers 1, 2, and 3 has a positive impact on students. For example, Algozzine et al. (2012), Ervin et al., (2006), and Lane and Mezies (2003) examined the effects of Tier 1, 2, and 3 evidence-based literacy instruction and interventions (e.g., Reading Mastery; Engelmann & Bruner, 1995; peer assisted fluency practice; Fuchs et al., 2001) paired with behavioral supports (e.g., positive behavioral expectations, Sugai & Horner, 2002; Functional Behavioral Assessment; Sugai et al., 2000) on student outcomes. Improved student outcomes included significantly increased

phoneme segmentation and nonsense word reading fluency alongside significantly decreased rates of office disciplinary referrals (ODRs) among K-3rd grade students (Algozzine et al., 2012) and significantly improved nonsense word reading fluency among K-5th grade students and significant reductions in students' disruptive behaviors and ODRs (Ervine et al., 2006). Lane and Menzies (2003) also found significantly improved reading achievement on district reading measures and oral reading fluency, paired with moderate, albeit nonsignificant decreases in students' negative behavioral comments and slight decreases in absenteeism. More recently, Chaparro et al., (2020) examined schoolwide use of integrated academic and behavioral instruction and interventions and found that it led to significant improvements in K-4th grade students' oral reading fluency, although student behavior data were not obtained in this study.

Taken together, these studies indicate that integrating academic and SEB supports is a productive way to enhance educators' work, while also improving students' comprehensive outcomes. In schools, however, little is known about which specific components they are (or are not) integrating in their MTSS. Little is also known about the specific reasons why schools are able or unable to integrate their MTSS. For example, it is possible that schools more commonly integrate academic and SEB instruction and intervention (i.e., Tier 1) than they integrate academic and SEB assessments or engage in integrated DBDM. This hypothesis makes sense, given that many states have undertaken efforts to rely on high-quality instruction and curricular materials that address students' range of needs (Pak et al., 2020). On the other hand, it is also possible that schools more often integrate assessments and DBDM procedures than instruction and intervention, given the history many schools have with conducting academic and SEB assessments through RTI, PBIS, or MTSS (Bailey et al., 2020). It's important to tease apart which components schools more readily integrate and the reasons why so that schools can make more informed decisions about how and why to prioritize their I-MTSS improvement efforts, like by focusing on simpler-to-integrate components rather than the challenging ones (Pierce et al., 2026).

### Purpose

The purpose of this paper is to retrospectively analyze data collected as part of a validation study for the IMFR (Gandhi et al., 2026). For the validation study, we conducted three sequential rounds of IMFR administrations followed by psychometric analysis and tool refinement over a 3-year period of time. For this retrospective study, we used scoring data (e.g., item-level ratings) and interview transcript data from the validation study's final IMFR administration to examine patterns in I-MTSS implementation. We sought to answer three research questions:

(1) What components of MTSS were most and least likely to be scored as *Integrating* or *Sustaining*?
(2) What were the most common reasons that schools were not scored as *Integrating* or *Sustaining* for MTSS?
(3) What strategies were schools using to integrate MTSS?

Answers to these three questions provide insight into why schools may or may not be implementing I-MTSS, and what support they might need to improve their I-MTSS implementation. Below we provide detail on the sample, data source and analysis procedures for the retrospective study. A full description of the validation study and results is available in Gandhi et al. (2026).

## Method

This paper presents results from a descriptive study of I-MTSS implementation in 66 elementary schools, drawing from a sample and dataset used to validate the Integrated MTSS Fidelity Rubric, or IMFR (Gandhi et al., 2026). Using this dataset, we retrospectively describe and analyze ways in which I-MTSS implementation appears to be easy or challenging.

## Participants

The sample for this study consists of the 66 schools that participated in the final year of the IMFR validation study. Restricting the sample to the validation study's final year was intentional, because the IMFR contained slightly different items and scoring criteria each year. Using data from only one year ensured consistency in the scoring criteria that were analyzed. Schools that participated in the validation study were selected through a convenience sampling method in which we first reached out to and secured participation from district leaders with whom we had existing relationships, and whose districts together represented a range of geographic and demographic characteristics. All elementary schools in these districts were invited to participate. Before confirming the final sample, district leaders completed a survey asking for their perception of the degree to which each elementary school within their district was already implementing I-MTSS. These data were used to ensure that the sample had sufficient expected variability in I-MTSS implementation to support robust psychometric analyses.

The schools in the sample ranged in size from 187 to 831 students, with variation in student demographic characteristics. The schools were located across 20 districts in 9 states. Table 1 describes the characteristics of the schools in the sample.

## Data Source

The data source for this study was the IMFR, a 14-item measure of elementary school I-MTSS implementation. Each item is associated with one of four domains, has a short definition, and is broken down into its research-based features, or criteria. The Instruction and Intervention domain includes three items: Tier 1, Tier 2, and Tier 3. The Assessment domain also has three items, focused on the collection of data that inform decisions within MTSS: Universal Screening, Diagnostic Assessment, and Progress Monitoring. The Data-Based Decision-Making (DBDM) domain includes four items that focus on the analysis procedures used to make data-based decisions about instruction and intervention within MTSS: Universal DBDM, Targeted DBDM, Intensive DBDM, and Continuous Improvement. The Infrastructure domain includes the final four items, which are District Leadership, School Leadership, Schoolwide Culture, and Professional Learning. The IMFR items, and their associated domains, reflect the components that make up MTSS. To access the IMFR, go to www.air.org/resource/guidetoolkit/integrated-mtss-fidelity-rubric-imfr (American Institutes for Research, n.d.).

Most items on the IMFR are measured on a five-point scale with the rating categories of *Beginning, Exploring, Aligning, Integrating, and Sustaining.* This scale reflects the degree to which an item's criteria are in place and are strategically combined (i.e., integrated) in at least one academic area (reading or math) and in SEB supports. For example, a school would receive a rating of *Integrating* in Tier 1 if all criteria were in place in math and in SEB supports and if Tier 1 math and SEB supports were strategically combined across all classrooms. Table 2 presents the definition, scoring criteria, and rating categories for Tier 1, an item in the Instruction and Intervention domain.

The IMFR was administered through an interview with members of a school's MTSS team or, if a team did not exist, with a small group of school staff who had knowledge of the school's MTSS-related procedures and systems. All IMFR administrations were conducted virtually by trained data collectors, each of whom had school-based MTSS experience and/or was enrolled in graduate study with a focus on MTSS. Rater training consisted of four, three-hour virtual training sessions and an additional one-hour training, totaling 13 hours of training each of the study years. Raters then completed reliability checks, which involved independently scoring two pre-recorded hypothetical IMFR administrations with mock school teams. For the year in which the retrospective study occurred, 16 out of 16 (100%) of raters passed both checks by correctly matching 80% of all possible responses. These raters were then allowed to independently administer and score the IMFR. A study team member randomly observed two IMFR administration videos per rater to assess for fidelity to administration procedures.

**Table 1**

*Characteristics of Participating Schools*

| | Average | Range |
|---|---|---|
| Enrollment | 429 | 187–831 |
| Students with Disabilities | 14.30% | 5.4%–26.1% |
| English Learners | 8.90% | 0.0%–39.9% |
| Free/Reduced Price Lunch | 45.00% | 2.1%–100% |
| AI/AN | 1.60% | 0-48.9% |
| AAPI | 6.40% | 0-47.5% |
| Hispanic | 10.80% | 1-42.4% |
| African American | 10.90% | 0-44.9% |
| Caucasian | 61.50% | 18-95.8% |
| Two or more races | 8.90% | 1-19.0% |

*Note.* AI/AN = American Indian and Alaska Native; AAPI = Asian American and Pacific Islander. Some data are excluded due to suppression of student information or missing data.

## Analysis Procedure

We conducted descriptive analysis of the scoring and interview transcript data from the validation study to answer the three research questions. For RQ1, we sought to understand which IMFR items were most and least likely to be rated as *Integrating* or *Sustaining.* To obtain this information, we calculated the percentages of schools that received different ratings (e.g., the percentage of schools rated as *Beginning*, *Exploring,* etc.) for each IMFR item. Because a rating of *Sustaining* indicated that the school has been integrating for that item for at least the past 2 years, we included it in our calculation of the percentage of schools considered to be integrating for any given item. We assumed that higher percentages reflected items in which integration was easier to achieve, and lower percentages reflected items in which integration was more challenging.

For RQ2, we sought to understand the most common reasons that schools were not rated as *Integrating* or *Sustaining* for each item. To gain this information, we examined the scoring criteria that schools most often failed to meet. Failure to meet any of the criteria meant that a school was missing important features of a given item (e.g., Universal Screening in academics or SEB was not evidence-based). Schools could not be considered to be integrating without first meeting all criteria for an academic area and for SEB supports. We then calculated the percentages of schools meeting the criteria for each item. We assumed that lower percentages meeting the criteria reflected the most common reasons why schools did not receive an *Integrating* rating.

For RQ3, we examined data from IMFR administration interview transcripts from schools with one or more IMFR rating of *Integrating* or *Sustaining*. Specifically, we reviewed the transcripts and flagged examples of strategies that reflected integration. The flagged examples were then categorized by IMFR item, such that all strategies related to a given item were grouped together to better indicate how schools approached integration.

**Table 2**

*Definition, Criteria, and Rating Categories for Tier 1*

| | | Rating Categories | | | | |
|---|---|---|---|---|---|---|
| Definition | Criteria | Beginning | Exploring | Aligning | Integrating | Sustaining |
| Tier 1 refers to the core curriculum and instructional practices delivered to all students. | (a) Tier 1 is evidence based.<br>(b) Tier 1 is differentiated to address the needs of all learners.<br>(c) Tier 1 is delivered with fidelity. | Tier 1 does not meet all criteria in any academic or SEB area. | Tier 1 meets all criteria in at least one academic area or at least one SEB area. | Tier 1 meets all criteria in at least one academic area and at least one SEB area, but academic and SEB areas are not combined (i.e., they operate separately). | Tier 1 meets all criteria in at least one academic area and at least one SEB area, and academic and SEB areas are intentionally combined. | For at least 2 years, Tier 1 has met all criteria in at least one academic area and at least one SEB area, and academic and SEB areas are intentionally combined and documented in policies and procedures. |

## Results

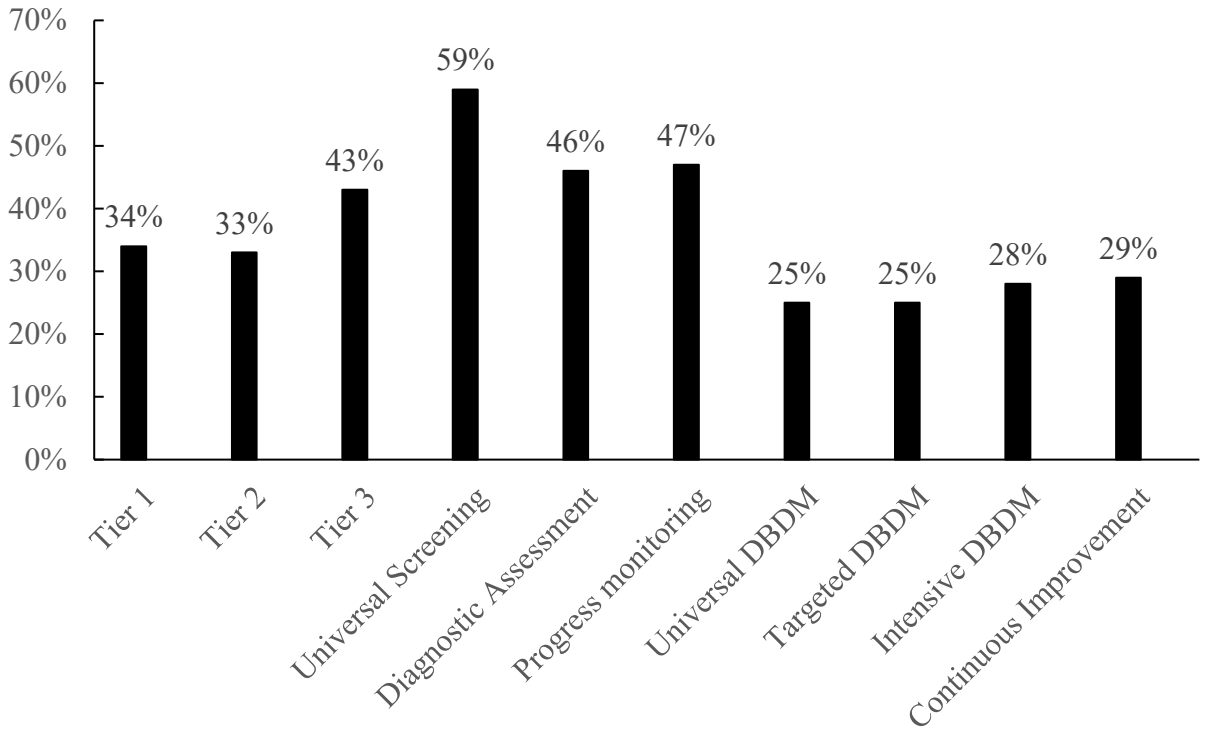
In this section, we present the results of the analyses conducted for each of our research questions. For all three research questions, we focused our analysis on items in the three domains that reflect integration of MTSS practices: Instruction and Intervention, Assessment, and DBDM. We did not analyze scores on the Infrastructure items because these items are reflective of system-level support for integration rather than integration itself.

### Research Question 1: What Components of MTSS Were Most and Least Likely to be Scored as Integrating and Sustaining?

Figure 1 shows the percentage of schools that scored as *Integrating* and *Sustaining* for each item. These data reveal that integration was observed most often for the three assessment items: Universal Screening (59%), Diagnostic Assessment (46%), and Progress Monitoring (47%). Integration was observed the least often for the four DBDM items: Universal DBDM (25%), Targeted DBDM (25%), Intensive DBDM (28%), and Continuous Improvement (29%).

**Figure 1**

*Percentage of Schools Scoring Integrated or Sustaining by Integrated MTSS Fidelity Rubric Item*




*Note.* DBDM = data-based decision-making.

Observations of integration for the Instruction and Intervention items ranged in the middle of these other domains, with the percentage of schools rated as *Integrating* or *Sustaining* falling between 33% and 43%. These data imply that schools may find it easier to integrate assessments than instruction and intervention, with DBDM being the most difficult to integrate.

## Research Question 2: What Were the Most Common Reasons that Schools Were Not Scored as Integrating or Sustaining for MTSS?

To answer RQ2, we examined the scoring criteria that schools most often failed to meet, which prevented them from achieving an *Integrating* or *Sustaining* rating. We start with analysis of the assessment items, because data showed the most integration there. We then follow with a discussion of instruction and intervention, and then DBDM.

### *Assessment*

The assessment domain on the IMFR includes three items that represent the types of student assessment data that are collected and used within I-MTSS: Universal Screening, Diagnostic Assessment, and Progress Monitoring. In order to be scored as *Integrating*, schools must first meet all criteria for the specific type of assessment (e.g., Universal Screening) in at least one academic content area (i.e., reading or math) and for SEB. There are three criteria for the Assessment items, which are that the assessment is: (A) evidence-based and/or appropriately aligned to student need, (B) administered with fidelity, and (C) used according to its intended purpose. For each Assessment item, if a school meets Criteria A, B, and C for both an academic area (i.e., reading or math) and for SEB, then they can be rated for integration. Integration for assessment items means that relevant staff can access both academic and SEB assessment data at the same time.

Table 3 shows the percentage of schools that met all three criteria (i.e., evidence-based, administered with fidelity, appropriate purpose) within reading, math or SEB for each Assessment item. Meeting all three criteria was considered to be an indicator of "full implementation" in a given content area. For example, a school was rated as fully implementing Universal Screening in reading if that school used an evidence-based reading screener (i.e., Criterion A), administered the screener with fidelity (i.e., Criterion B), and used the screener for its intended purposes (i.e., Criterion C). Table 3 also shows the percentage of schools that met criteria A, B, and C.

The data showed two clear patterns. For one, SEB was the content area in which full implementation was least likely, meaning that schools missed one or more of the criteria for how they approached assessment in SEB. This pattern was most pronounced for Universal Screening, where 100% of the schools in the sample achieved full implementation (i.e., met Criteria A-C) in reading and math but only 75% of schools met full implementation for SEB. For Diagnostic Assessment and Progress Monitoring, a higher percentage of schools achieved full implementation in reading (88% and 94% respectively) than in math (73% and 70%) and SEB (66% and 70%). The second pattern found was that the most common reason why schools were not rated as *Integrated* was because assessments were not used with fidelity (i.e., Criterion B), with 67%, 75%, and 78% of schools administering Diagnostic Assessment, Universal Screening, and Progress Monitoring (respectively) with fidelity. These findings indicate that the most common reason why schools are not integrating assessments is because they were not yet using SEB assessments or were using assessments without fidelity.

**Table 3**

*Percentage of Schools Showing Full Implementation and Meeting Scoring Criteria for Items in the Assessment Domain*

| | Universal Screening | | | Diagnostic Assessment | | | Progress Monitoring | | |
|---|---|---|---|---|---|---|---|---|---|
| Criteria | Reading | Math | SEB | Reading | Math | SEB | Reading | Math | SEB |
| Full implementation | 100% | 100% | 75% | 88% | 73% | 66% | 94% | 70% | 70% |
| Criterion A: Evidence-based | 100% | 100% | 82% | 96% | 87% | 73% | 97% | 84% | 78% |
| Criterion B: Fidelity | 100% | 100% | 75% | 88% | 75% | 67% | 99% | 78% | 78% |
| Criterion C: Appropriate purpose | 100% | 100% | 79% | 96% | 85% | 72% | 97% | 73% | 81% |

*Note.* SEB = Social-emotional behavioral supports.

### *Instruction and Intervention*

The Instruction and Intervention domain also includes three items: Tier 1, Tier 2, and Tier 3. Like Assessment, there are three criteria, which are consistent in their focus across the three items. Criterion A is instruction or intervention must be evidence-based. Criterion B is that instruction at Tier 1 is differentiated to address the needs of all learners and at Tiers 2 and 3, it is supplemental to Tier 1. Criterion C is that the intervention is delivered with fidelity. All three criteria need to be met in at least one academic area and in SEB in order for a school to be considered for an *Integrated* rating. Integration for Tier 1 is defined as integrating academic and SEB curriculum and instructional practices. At Tiers 2 and 3, integration is defined as including attention to both academic and SEB needs, for students with interrelated needs.

Table 4 shows the percentage of schools that achieved full implementation and therefore met each criterion for Tier 1, Tier 2, and Tier 3 in reading, math and SEB. For Tiers 1 and 2, a higher percentage of schools achieved full implementation in reading SEB. Specifically, for Tier 1, 72% of schools achieved full implementation in reading, but 60% and 43% meet each criterion in math and SEB (respectively). For Tier 2, 57% of schools were rated as fully implementing in reading, but 43% and 40% of schools met each criterion in math and SEB (respectively). For Tier 3, the percentage of schools achieving full implementation was higher for reading and SEB (52%) than math (36%). When looking at the specific criteria, the data show that schools were least likely to meet Criterion C (i.e., fidelity) for all items and across all three content areas. These data indicate that for the schools that did not achieve full implementation in reading, math or SEB, the most common reason was because their intervention or instructional program was not being delivered with fidelity.

**Table 4**

*Percentage of Schools Showing Full Implementation and Meeting Scoring Criteria for Items in the Instruction and Intervention Domain*

| | Tier 1 | | | Tier 2 | | | Tier 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| Criteria | Reading | Math | SEB | Reading | Math | SEB | Reading | Math | SEB |
| Full Implementation | 72% | 60% | 43% | 57% | 43% | 40% | 52% | 36% | 52% |
| Criterion A: Evidence-based | 99% | 93% | 93% | 97% | 79% | 93% | 82% | 64% | 79% |
| Criterion B: Diff or Supplement | 97% | 93% | 75% | 97% | 93% | 99% | 82% | 75% | 88% |
| Criterion C: Fidelity | 72% | 63% | 52% | 60% | 51% | 40% | 54% | 37% | 54% |

*Note.* SEB = Social-emotional behavioral supports, Diff or Supplement = Differentiated or Supplemental.

### *Data-based Decision Making*

The DBDM domain includes 4 items: Universal DBDM, Targeted DBDM, Intensive DBDM, and Continuous Improvement. There are 6 criteria for Universal, Targeted, and Intensive DBDM, and 5 for Continuous Improvement, with a mostly consistent focus. For all DBDM items, Criterion A focuses on the purpose of the DBDM, Criterion B focuses on the staff who are involved in the DBDM, and Criterion C focuses on the type of data that are used. For Universal, Targeted, and Intensive DBDM, the remaining three criteria are about including

data on student's language and cultural backgrounds (Criterion D); consistent application of decision rules based on data (Criterion E); and communication between staff and caregivers (Criterion F). For continuous improvement, the remaining criteria are that the DBDM occurs at least annually (Criterion G) and that there is communication between the school and the community (Criterion H).

Table 5 shows the percentage of schools that achieved full implementation and that met each criterion for each item and content area. For Universal, Targeted and Intensive DBDM, the percentage of schools that achieved full implementation was higher in reading (69%, 51%, and 46%, respectively) than in math and SEB. This difference was most pronounced for Universal DBDM, with the percentage achieving full implementation in math (54%), was also higher than in SEB (33%). For Targeted and Intensive DBDM, the percentage of schools achieving full implementation in math and SEB was similar (37-39%). For Continuous Improvement, the percentage achieving full implementation for reading and math was similar (54%) and higher than for SEB (43%).

A closer look at the data for each criterion shows patterns that indicate which criteria of DBDM were least likely to be in place. For Universal, Targeted, and Intensive DBDM, the majority of schools (80% or more) were engaging in the appropriate purpose for the DBDM (i.e., Criterion A) and had the right staff involved (i.e., Criterion B), for reading, math and SEB. However, the data showed that in some cases, a lower percentage of schools were using the right data for DBDM (i.e., Criterion C). For example, for Universal DBDM, 75% of schools were using validated Universal Screening data for SEB, compared to 100% and 91% respectively in reading and math. For Targeted and Intensive DBDM, the percentages were generally lower for all content areas, with between 58% and 76% of schools using the appropriate Diagnostic and Progress Monitoring data.

With the exception of Universal and Targeted DBDM in reading, fewer than 80% of schools were consistently applying decision rules based on data (Criterion E). Between 70-79% of schools met the criterion to review data on student language and cultural backgrounds and special education status as part of Universal, Targeted or Intensive DBDM. Generally, the majority of schools included communication between staff and caregivers as part of their DBDM processes (Criterion F), with a notably smaller majority of only 66% meeting this criterion for Universal DBDM in SEB.

For Continuous Improvement, the majority of schools involved an administrator with decision-making authority in the process (90% or more; Criterion B) and engaged in the DBDM process at least annually (85% to 97%; Criterion G). Smaller percentages of schools met Criterion A, the purpose of Continuous Improvement (66-70%), Criterion C, the involvement of school-level I-MTSS data (57-67%), and Criterion H, communication between the school and the community (75-78%).

**Table 5**

*Percentage of Schools Showing Full Implementation and Meeting Scoring Criteria for Items in the Data-based Decision-Making (DBDM) Domain*

| | Universal DBDM | | | Targeted DBDM | | | Intensive DBDM | | | Continuous Improvement | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Criteria | Reading | Math | SEB | Reading | Math | SEB | Reading | Math | SEB | Reading | Math | SEB |
| Full implementation | 69% | 54% | 33% | 51% | 39% | 39% | 46% | 37% | 39% | 54% | 54% | 43% |
| Criterion A: DBDM purpose | 100% | 91% | 81% | 96% | 82% | 84% | 94% | 84% | 91% | 70% | 69% | 66% |
| Criterion B: Staff involved | 99% | 91% | 87% | 97% | 87% | 93% | 91% | 85% | 91% | 97% | 97% | 90% |
| Criterion C: Type of data | 100% | 91% | 75% | 76% | 60% | 69% | 64% | 58% | 64% | 67% | 67% | 57% |
| Criterion D: Language and culture | 75% | 70% | 70% | 79% | 75% | 78% | 73% | 70% | 79% | N/A | N/A | N/A |
| Criterion E: Decision rules | 99% | 76% | 60% | 82% | 64% | 52% | 75% | 63% | 63% | N/A | N/A | N/A |
| Criterion F or H: Communication | 91% | 84% | 66% | 88% | 76% | 85% | 91% | 84% | 93% | 78% | 76% | 75% |
| Criterion G: Frequency | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 97% | 97% | 85% |

*Note.* SEB = Social-emotional behavioral supports.

### Research Question 3: What Strategies Do Schools Use to Integrate MTSS?

Among the schools that were rated as *Integrating* or *Sustaining* on the Assessment items, participants shared examples of strategies they used for jointly accessing and viewing academic and SEB assessment data. Some schools reported using Excel spreadsheets that were customized to allow for viewing the data simultaneously. Others reported using programs (e.g., EduClimber; Illuminate Education, n.d.) that facilitated data visualizations that could be shared with data teams. One school described data binders that they put together that contained academic and SEB data for all students.

Integration in the Instruction and Intervention domain requires that students' interrelated academic and SEB needs are addressed as part of Tier 1, 2 and 3. Examples of integration for Tier 1 included embedding language from Tier 1 behavioral programs into academic instruction and reinforcing expected behaviors during academic instruction. At Tier 2, an example of integration was a school which embedded academic behaviors into Check-In/Check-Out (Wolfe et al., 2016) charts, and a school in which teachers provided opportunities to apply self-regulation during academic intervention. For Tier 3, an integration example was in a school where a student received customized intensive academic intervention with a reinforcement system, to increase on-task behavior.

Among the schools rated as *Integrating* or *Sustaining* for DBDM items, examples of integration were similar. For Universal DBDM, grade level teams reviewed academic and SEB universal screening data together and used decision rules to identify students who needed additional support. For Targeted and Intensive DBDM, problem-solving teams were comprised of individuals with expertise across all relevant areas (e.g., principal, reading teachers, English language staff representative, speech language pathologists, school counselor, special education teacher, classroom teacher). For Continuous Improvement, the school leadership teams reported reviewing academic and SEB fidelity and outcome data at the school level on at least an annual basis, and discussed if any changes are needed to support integrated implementation.

## Discussion

The data presented in this paper describe how I-MTSS is being implemented in a sample of elementary schools across the country, highlighting in particular the specific components of I-MTSS that are more likely to be integrated as well as possible barriers to integration, as reflected in missed criteria for each I-MTSS item. The data come from a validation study of the IMFR, a rubric developed under a grant from the US Department of Education and designed to support schools in understanding and improving their implementation of I-MTSS. The detailed scoring criteria in the IMFR represent components of MTSS that are necessary to move towards implementation of I-MTSS. By analyzing these criteria, we were able to identify barriers to integrating an academic tiered system and SEB tiered system into one system in one schools. There are limitations to the analysis that we describe below, Additionally, we describe implications of this study for MTSS policy, practice and research.

Data from this study show that I-MTSS implementation is occurring. Although a very small percentage (3%) of schools were integrating in every item we measured, over a quarter of the schools were rated as integrating in at least one of the MTSS items that was rated, with nearly 60% rated as integrating for universal screening. Nonetheless, this study also identified barriers in the implementation of I-MTSS. These provide important insight to guide policymakers and practitioners as they lead I-MTSS implementation, and researchers seeking to generate evidence about how I-MTSS leads to improved student outcomes.

Four barriers in particular stand out from this analysis. First, data showed that a quarter or more of the schools were not meeting all three required criteria for implementing SEB assessment. These data are important because without meeting all three criteria in SEB, the school cannot be rated as integrating, and sheds light on why schools might not be integrating in the domain of Assessment specifically. A hypothesis is that it could be a limitation in the availability of valid and reliable assessment tools for SEB, particularly for

diagnostic and progress monitoring purposes (Kim et al., 2022; McDaniel et al., 2025). While advances have been made in the last decade in terms of additional measures for screening and progress monitoring in SEB, including expert review and publication of measures on the tools charts for the National Center for Intensive Intervention (intensiveintervention.org, n.d.), much work is still left to be done to have the number and variety of measures as the academic counterpart. This is particularly true as schools examine SEB for students in Tier 3, where the default data collection has been Functional Behavior Assessment, which typically involved structured interviews and systematic direct observations and can therefore be quite time consuming (Filter & Alvarez, 2011; Center on PBIS, 2022).

Second, only about half of the schools, on average, delivered instruction and intervention with fidelity across the three tiers in reading, math or SEB based on their reports. This percentage was especially low for Tier 3 math with only 37% of schools rated as implementing with fidelity. If instruction and intervention is not delivered with fidelity, then effective integration cannot be achieved. A possibility is that schools did not meet fidelity criteria because they weren't monitoring teachers' fidelity and therefore couldn't say if instruction or intervention was delivered as intended. Schools that are looking to integrate Tier 1, 2, and 3 can ensure they are regularly monitoring teachers' fidelity and helping teachers implement instruction and interventions in accordance with curricular recommendations (King et al., 2018; McKenna et al., 2014). Researchers should consider how they can move the fidelity measures they utilize for their studies into school-friendly versions following completion of the studies, with guidelines for how schools can use these to better improve their practices. Policy makers can insist that state funded programs (for instance) have accompanying fidelity checks and that schools who implement these programs implement those checks regularly.

Third, a common barrier to integration was that school teams were not using the right data or not applying decision rules when engaging in DBDM. This was mostly apparent for diagnostic assessment and progress monitoring, where three-quarters or less of the schools were rated as using appropriate assessment tools. Additionally with the exception of Universal DBDM in, fewer than 80% of schools were using decision rules to guide DBDM. Having appropriate assessments and rules to guide decision-making is critical for educators to making timely and appropriate decisions about student progress. When educators utilize appropriate assessment data to make better decisions about student instruction and intervention, student achievement can improve (Stecker, Fuchs, & Fuchs, 2005).

Finally, data from this study showed lower percentages of schools reviewing data on language and cultural background as part of DBDM. While the primary focus of DBDM is examining graphed academic or SEB data, other factors that might influence the whole child should be considered. For instance, team members discussing attendance, vision, or hearing concerns can lead to a more robust decision for a student that addresses the child's comprehensive needs. It was important to include language and cultural background in the rubric to make sure that all factors were being considered that might potentially impact academic or behavioral success (Kressler et al., 2020). While these are necessary discussions, unfortunately they did not occur very often in the schools included in the study. Researchers should also be examining and reporting on the issues as they study I-MTSS to provide a better gauge for how schools with diverse populations of students can utilize study results.

## Limitations

While this study attempted to be as comprehensive as possible in terms of accessing school teams across the nation, there were limitations that should be noted. First, we recruited as broadly as possible, contacting colleagues at other universities and working with existing technical assistance networks to help identify potential schools, but the resulting sample is not fully representative of the population in the United States. Second, while the interview administrators were trained and were reliable in both their delivery of the questions and their scoring, the data is ultimately self-report and thus could be exaggerated or underestimated. Finally, the data are

descriptive in nature, so suggest patterns but don't imply a connection to student outcomes. We did collect student outcomes on state test scores, for instance, but the link between rubric ratings and student performance on state tests could not be considered causal.

## Conclusion

The schools in the study sample shared useful examples of what integration looks like in practice, including tools to facilitate viewing academic and SEB data together, classroom management strategies to support academic instruction, and streamlining duplicative teaming structures to better engage in integrated DBDM. Further research is needed to understand which strategies are most effective and efficient to support integration, and how integration impacts student outcomes. In addition, researchers in the areas of SEB and academic intervention need to collaborate to conduct joint studies examining the effects of embedding SEB supports in academic interventions (see Buckman et al, 2025, for example). The results from this subset of schools across the United States is promising in terms of I-MTSS implementation, and with the use of tools like the IMFR, schools can continue to understand their strengths and areas for improvement in I-MTSS, focusing on goals for continuous improvement.

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## References

Algozzine, B., Wang, C., White, R., Cooke, N., Marr, M. B., Algozzine, K., Helf, S.S., & Duran, G. Z. (2012). Effects of multi-tier academic and behavior instruction on difficult-to-teach students. *Exceptional Children*, *79*(1), 45-64.https://doi.org/10.1177/001440291207900103

American Institutes for Research. (2024, March 1). *Integrated MTSS fidelity rubric (IMFR).* https://www.air.org/resource/guidetoolkit/integrated-mtss-fidelity-rubric-imfr

Bailey, T. R., Colpo, A., & Foley, A. (2020). *Assessment practices within a multi-tiered system of supports* (Document No. IC-18). http://ceedar.education.ufl.edu/tools/innovationconfigurations/

Buckman, M., Lane, K. L., Briesch, A., Sherod Adams, R. L. S., Oakes, W. P., Royer, D. J., Common, E., Chafouleas, S., Lane, N.A., Sarasin, E., Allen, G>E., Pelton, K.S., Fleming, K., & Williamson, K. M. (2026). Learning outcomes of school leaders in experienced Ci3T schools: Exploring the impact of the enhanced Ci3T professional learning series and delivery. *Research in Special Education*, *3*. https://doi.org/10.25894/rise.2969

Castillo, J. M., Scheel, N. L., Wolgemuth, J. R., Latimer, J. D., & Green, S. M. (2022). A scoping review of the literature on professional learning for MTSS. *Journal of School Psychology*, *92*, 166-187. https://doi.org/10.1016/j.jsp.2022.03.010

Center on PBIS. (2022). *Tier 3 brief functional behavior assessment (FBA) guide*. Center on PBIS, University of Oregon.

Chaparro, E. A., Smolkowski, K., & Jackson, K. R. (2020). Scaling up and integrating effective behavioral and instructional support systems (EBISS): A study of one state's professional development efforts. *Learning Disability Quarterly*, *43*(1), 4-17. https://doi.org/10.1177/0731948719851752

Engelmann, S., & Bruner, E. C. (1995). *Reading mastery classic I*. SRA/McGraw-Hill.

Ervin, R. A., Schaughency, E., Goodman, S. D., McGlinchey, M. T., & Matthews, A. (2006). Merging research and practice agendas to address reading and behavior school-wide. *School Psychology Review*, *35*(2), 198-223. https://doi.org/10.1080/02796015.2006.12087987

Filter, K. J., & Alvarez, M. E. (2011). Tier 3 functional behavioral assessment. In *Functional behavioral assessment: A three-tiered prevention model* (pp. 91–110). Oxford University Press.

Freeman, R., Miller, D., & Newcomer, L. (2015). Integration of academic and behavioral MTSS at the district level using implementation science. *Learning Disabilities: A Contemporary Journal*, *13*(1), 59-72.

Fuchs, D., & Fuchs, L. S. (2006). Introduction to response to intervention: What, why, and how valid is it? *Reading Research Quarterly, 41*(1), 93-99. https://doi.org/10.1598/RRQ.41.1.4

Fuchs, D., Fuchs, L., Yen, L., & McMaster, K. (2001). Developing first-grade reading fluency through peer mediation. *Teaching Exceptional Children, 34*(2), 90-93.

Gandhi, A. G., Lembke, E., Pierce, J., Smith, H., Swanlund, A., Casasanto-Ferro, J., Majeika, C. E., & Riley-Tillman, T. C. (2026). Measuring implementation of multi-tiered systems of support (MTSS): Development and validation of the Integrated MTSS Fidelity Rubric (IMFR). *Assessment for Effective Intervention*, *51*(2). https://doi.org/10.1177/15345084251407952

Gettinger, M., Kratochwill, T. R., Levin, J. R., Eubanks, A., & Foy, A. (2024). Academic and behavior combined support: A single-case practice-based replication study. *Journal of School Psychology*, *104*, 101307. https://doi.org/10.1016/j.jsp.2024.101307

Horner, R. H., & Sugai, G. (2015). School-wide PBIS: An example of applied behavior analysis implemented at a scale of social importance. *Behavior Analysis in Practice*, *8*(1), 80-85. https://doi.org/10.1007/s40617-015-0045-4

Illuminate Education. (n.d.). *eduCLIMBER* [Data system]. Retrieved June 30, 2026, from https://www.illuminateed.com/products/educlimber/

I-MTSS Research Network. (n.d.). *Definition of I-MTSS*. Retrieved June 30, 2026, from https://mtss.org/overview

Kim, E. K., Anthony, C. J., & Chafouleas, S. M. (2022). Social, emotional, and behavioral assessment within tiered decision-making frameworks: Advancing research through reflections on the past decade. *School Psychology Review*, *51*(1), 1-5. https://doi.org/10.1080/2372966X.2021.1907221

King-Sears, M. E., Walker, J. D., & Barry, C. (2018). Measuring teachers' intervention fidelity. *Intervention in School and Clinic*, *54*(2), 89-96. https://doi.org/10.1177/1053451218765229

Kressler, B., Chapman, L. A., Kunkel, A., & Hovey, K. A. (2020). Culturally responsive data-based decision making in high school settings. *Intervention in School and Clinic*, *55*(4), 214-220. https://doi.org/10.1177/1053451219855737

Lane, K. L., & Menzies, H. M. (2003). A school-wide intervention with primary and secondary levels of support for elementary students: Outcomes and considerations. *Education and Treatment of Children, 26*(4), 431-451.

Lane, K. L., Oakes, W. P., Allen, G. E., Lane, N. A., Jenkins, A. B., Lane, K. S., Messenger, M.L., Buckman, M.M., Fleming, K.K., & Swinburne Romine, R. E. (2020). Improving educators' knowledge, confidence, and usefulness of a Comprehensive, Integrated, Three-Tiered (Ci3T) Model of Prevention: Outcomes of professional learning. *Education and Treatment of Children*, *43*(3), 279-293. https://doi.org/10.1007/s43494-020-00021-3

McDaniel, S. C., Chow, J. C., Kilgus, S. P., Porter, J., & Vengurlekar, I. (2025). A systematic review of universal screening for social, emotional, and behavior needs in schools. *Journal of Applied School Psychology*, *41*(2), 118-148. https://doi.org/10.1080/15377903.2025.2475434

McIntosh, K., & Goodman, S. (2016). *Integrated multi-tiered systems of support: Blending RTI and PBIS*. Guilford Publications.

McKenna, J. W., Flower, A., & Ciullo, S. (2014). Measuring fidelity to improve intervention effectiveness. *Intervention in School and Clinic*, *50*(1), 15-21. https://doi.org/10.1177/1053451214532348

Majeika, C. E., Pierce, J., Smith, H., Lembke, E., & Gandhi, A. (2024). Integrated multi-tiered systems of support in elementary schools: Practical applications. *Intervention in School and Clinic*, *60*(1), 53-61. https://doi.org/10.1177/10534512241254031

National Center for Intensive Intervention. (n.d.). *Tools charts*. Retrieved June 30, 2026, from https://intensiveintervention.org/

Pak, K., Polikoff, M. S., Desimone, L. M., & Saldívar García, E. (2020). The adaptive challenges of curriculum implementation: Insights for educational leaders driving standards-based reform. *AERA Open, 6*(2), 1–15. https://doi.org/10.1177/2332858420932828

Pierce, J., Arnold, A., Majeika, C.E., Gandhi, A., Lembke, E. (Accepted for publication). An Evolution of Multi-Tiered Systems of Support (MTSS): Integrated MTSS.

Simonsen, B., Coyne, M., & Goodman, S. (2024). Implementing practices within an integrated multi-tiered system of support: introduction to the special series. *Intervention in School and Clinic*, *60*(1), 3-5. https://doi.org/10.1177/10534512241257435

Stecker, P. M., Fuchs, L. S., & Fuchs, D. (2005). Using curriculum-based measurement to improve student achievement: Review of research. *Psychology in the Schools, 42*, 795–819. https://doi.org/10.1002/pits.20113

Sugai, G., & Horner, R. (2002). The evolution of discipline practices: School-wide positive behavior supports. *Child and Family Behavior Therapy, 24*(1–2), 23–50. https://doi.org/10.1300/J019v24n01_03

Sugai, G., & Horner, R. H. (2009). Responsiveness-to-intervention and school-wide positive behavior supports: Integration of multi-tiered system approaches. *Exceptionality, 17*(4), 223-237. https://doi.org/10.1080/09362830903235375

Sugai, G., Lewis-Palmer, T., & Hagan-Burke, S. (2000). Overview of the functional behavioral assessment process. *Exceptionality, 8*(3), 149-160. https://doi.org/10.1207/S15327035EX0803_2

Wolfe, K., Pyle, D., Charlton, C. T., Sabey, C. V., Lund, E. M., & Ross, S. W. (2016). A systematic review of the empirical support for check-in check-out. *Journal of Positive Behavior Interventions*, *18*(2), 74-88. https://doi.org/10.1177/1098300715595957

Zhang, J., Martella, R. C., Kang, S., & Yenioglu, B. Y. (2023). Response to intervention (RTI)/multi-tiered systems of support (MTSS): A nationwide analysis. *Journal of Educational Leadership and Policy Studies*, *7*(1).