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Examining MTSS Implementation Across Systems for SLD Identification: A Case Study

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ABSTRACT: Although research supports the effectiveness of the multitiered system of supports (MTSS) on academic and behavioral outcomes, districts aim to engage in data-based decision making and examine the effectiveness of their own MTSS implementation. This case study describes how one regional education service agency (RESA) in the Midwest implemented MTSS and the effect of implementation on rates of specific learning disability (SLD) identification and the achievement of students receiving special education services under the category of SLD on the state assessment. Case data suggest MTSS effectiveness varies between schools and districts within a system, subpopulations of students, and type of outcome examined. Recommendations for future MTSS work among practitioners include: (a) professional development/coaching for educators that implement Tier 1 and Tier 3 instruction and intervention, (b) collaboration and coordination between systems and departments, and (c) data reviews that include the integrity of MTSS implementation, personnel changes, and the purpose of each type of data collected.

Multitiered system of supports (MTSS) is a framework through which educators provide strong core instruction (i.e., Tier 1), identify early signs of academic and behavioral risk through screening, provide scientifically based interventions of increasing intensity in response to student needs (i.e., Tiers 2 and 3), and monitor students' progress (Fuchs & Fuchs, 2017; Walker & Shinn, 2010). Response to intervention (RTI), which can be considered a type of MTSS, shares similar overarching definitional features with MTSS but may mean different things to different people (Walker & Shinn, 2010). Some RTI perspectives may emphasize the approach to service delivery, while other perspectives may emphasize RTI as a method for identifying specific learning disabilities (SLDs) under the Individuals with Disabilities in Education Improvement Act (IDEIA, 2004). For the purposes of this case study, the term MTSS is used to refer to both MTSS and RTI as frameworks for service delivery, and RTI is used to refer to the identification method legally codified through IDEIA (2004).

MTSS has grown in popularity in recent years for several reasons, including burgeoning empirical evidence supporting its effectiveness. In district- and state-level studies, evidence has suggested that MTSS supports academic achievement (e.g., Bollman, Silberglitt, & Gibbons, 2007; Peterson, Prasse, Shinn, & Swerdlik, 2007; Shapiro, 2016; VanDerHeyden, Witt, & Gilbertson, 2007); improves behavior (Peterson et al., 2007); decreases overall special education placement rates (Bollman et al., 2007);

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decreases special education placement rates for those having an SLD (Jimerson, Burns, & VanDerHeyden, 2016); prevents the misclassification, overidentification (Deno, 2016), and disproportionality (VanDerHeyden et al., 2007) of special education students; and generally holds high levels of social validity from stakeholders (Peterson et al., 2007). A full review of these and other related studies is beyond the scope of this paper; interested readers are referred to Jimerson et al. (2016) for more detail regarding MTSS research. Although promising findings have emerged, idiosyncrasies such as funding, setting characteristics, and features of local MTSS implementation may have implications for generalizability.

As MTSS consists of multiple intertwined components (VanDerHeyden et al., 2007), another approach to evaluate the evidence base supporting MTSS is as a sum of its parts (Burns, 2010). Research documents the effectiveness of MTSS components including support for Tier 1 quality core instruction, Tier 2 supplemental interventions, and Tier 3 individualized interventions (Burns, 2010); universal screening and progress monitoring and making instructional decisions based on student need (Deno, 2016); early intervention in reading (e.g., Shanahan et al., 2010) and math (Fuchs, Fuchs, & Compton, 2012); and a skill-by-treatment interaction, or using preintervention achievement measures to predict intervention effects (Burns, Codding, Boice, & Lukito, 2010).

Only recently was the first nationwide evaluation of MTSS completed. Balu et al. (2015) investigated MTSS implementation in 1,300 randomly selected schools across 13 states during the 2011–2012 school year. Balu et al. (2015) found that, at best, MTSS implementation had a neutral impact on outcomes and, at worst, a negative impact. Strikingly, the assignment of students to Tier 2 or Tier 3 intervention services negatively impacted first graders' reading performance on a year-end comprehensive measure, although effects for Grades 2 and 3 were not statistically significant in either direction. However, MTSS implementation practices varied, even among schools that reported full implementation, and reading interventions varied in their impact across schools for four reading outcome measures in Grades 1, 2, and 3.

Some have concluded that the Balu et al. (2015) study is indicative of MTSS ineffectiveness. However, several MTSS scholars have critiqued the Balu et al. (2015) study for its overly complex design and for the fact that schools in the sample lacked procedural adherence to "best practice" in MTSS implementation. For example, scholars have criticized the combination of a cut score set at the 41st percentile, which likely resulted in too many students qualifying for more intensive intervention, and the many schools that reported not having students receiving intervention in Tiers 1, 2, and 3, "seems to undermine the evaluators' claim that the study schools were 'fully implementing' RTI" (Fuchs & Fuchs, 2017, p. 261). Therefore, some scholars have suggested the study be used formatively rather than summatively regarding MTSS effectiveness (Gersten, Jayanthi, & Dimino, 2017).

In summary, a modest empirical research base supports the effectiveness of MTSS in local contexts, and the components of MTSS are themselves evidence based, but there is not yet evidence for a singular, evidence-based approach. Therefore, it is imperative that schools and districts aim to engage in data-based decision making and examine the effectiveness of their own MTSS implementation. MTSS implementation is costly for schools and districts (Fuchs et al., 2012), requiring sparse resources such as funding and time. During or after implementation, administrators seek to answer the following questions: Was MTSS implementation effective? Should we continue to allocate resources to MTSS? What was the return on investment for each component of MTSS implementation?

The purpose of this case study is to describe how one regional education service agency (RESA) in the Midwest implemented MTSS, the effect of implementation on rates of SLD identification, and the effect on achievement of students receiving special education services under the category of SLD on the state assessment. The case study documents part of the process used to answer complex questions regarding the effectiveness and resource efficiency of MTSS implementation and the challenges involved in addressing these questions. Recommendations for practice are offered for districts to generalize extant MTSS research to their own contexts, implement MTSS, and evaluate its effectiveness.

METHOD

Responsible for 12 school districts, the RESA in this case study serves a diverse population of approximately 44,000 students (40% from racially and ethnically diverse backgrounds, 45% who qualify for free or reduced-price meals). During the 2016–2017 school year, 12.73% of students ($n = 5{,}650$) qualified for special education services compared to the state average of 12.91%. In that same year, 47.2% of third graders served by the RESA were proficient on the English/language arts (ELA) state assessment compared to 44.1% of all students in the state. Of the 12 public school districts served by the RESA, three are located in rural settings, one is in an urban setting, and the remaining districts are located in suburban areas or towns. The districts range in size from fewer than 800 students to more than 11,000 students in kindergarten through Grade 12.

Process of Implementing MTSS as a Service Delivery Framework

The RESA outlines eight essential components of MTSS: (a) shared leadership, (b) tiered systems, (c) research-based instruction and intervention, (d) universal screening, (e) progress monitoring, (f) data-based decision making, (g) problem solving, and (h) family/parent involvement. These components were identified and defined from the literature (e.g., Batsche et al., 2005), other states' departments of education websites (e.g., Florida and Kansas), and a statewide workgroup supporting MTSS implementation.

MTSS implementation began in the 2007–2008 school year, prompted by three individuals: an administrator (trained as a school psychologist) at the RESA, a special education coordinator at the RESA (trained as a special educator), and a school-based school psychologist, all of whom had previous experience with MTSS in different settings. The first year of implementation focused on building consensus and buy-in among school districts around the need for MTSS and shifting away from balanced literacy (Fountas & Pinnell, 1996) and inquiry-based instructional approaches (Kirschner, Sweller, & Clark, 2006) to curricula using explicit instruction (Archer & Hughes, 2011). MTSS implementation was focused on the general education setting as a framework for service delivery, although RESA staff that prompted MTSS implementation reported that local culture viewed MTSS as an approach most applicable to special education settings (i.e., RTI for SLD identification). Three total buildings (i.e., two buildings across two districts, and one charter school) elected to begin MTSS implementation in 2007–2008. Seven additional buildings across three districts began implementation in 2008–2009.

MTSS implementation proliferated in 2009–2010 when the RESA received approximately $11 million through the American Recovery and Reinvestment Act (ARRA), with over 50 buildings across 11 out of the 12 districts implementing MTSS. Funds were allocated through the RESA to local school districts and were used to repurpose school personnel to serve as MTSS coaches; purchase universal screeners, core curricula, and interventions; and engage in professional development (PD). At that time, the RESA partnered with a state-level workgroup to support MTSS implementation and provide PD. When collaborating with districts to use ARRA funds and implement MTSS, the RESA emphasized sustainability, encouraging districts to use funds in such a way to minimize the negative impact when ARRA funds expired in 2010–2011. For example, using ARRA funds to hire interventionists may then require administrators to let go of those personnel when the funds were no longer available. The RESA consulted with university-based experts on MTSS for several years after large-scale implementation in 2009.

In 2010–2011, as MTSS implementation in local districts continued, the RESA revised its own internal structure and approach to providing support to districts. At this time, the RESA facilitated a unified commitment to MTSS implementation across all 12 districts. In 2011–2012, a research-based core literacy program was formally supported by the RESA. In 2012–2013, SLD eligibility guidelines were revised to allow for RTI methods in schools and districts where MTSS implementation was sufficient. In schools and districts in which MTSS implementation had not occurred (with integrity), patterns of strengths and weaknesses (PSW; Cottrell & Barrett, 2016; Stuebing, Fletcher, Branum-Martin, & Francis, 2012) were used.

In 2013–2014, a common data warehouse was purchased to facilitate data collection, storage, and analysis across multiple systems. Districts used different assessments, curricula, and/or programs, which lent themselves to different measures with varying degrees of technological compatibility. The mere collection and merging of various datasets (e.g., data from student information systems, curriculum-based measurement [CBM] assessment programs, behavior data, intervention data, and state assessment data) in various formats was a challenge in and of itself, and warranted a comprehensive solution. Early warning signs (EWS) data were used to identify secondary students at risk of academic failure or dropout in order to provide prevention and remediation services. The RESA continued to provide PD to almost 1,000 educators per academic year.

In 2014–2015, the RESA, in collaboration with local districts, conducted a comprehensive review of math curricula, chose one curriculum that was determined to be the best fit, and supported its implementation. Seven districts immediately adopted the new math curriculum, with additional districts adopting the curriculum in subsequent years. Finally, in 2015–2016, new SLD eligibility guidelines were implemented that required the use of RTI methods, as described later in this article.

Professional Development

Much of the investment in MTSS implementation was on the PD of teachers and administrators. PD topics included: consensus building, implementation of core curricula, the standardized administration and scoring of CBM assessment programs, data-based decision making, the standardized administration of interventions, overcoming logistical challenges such as scheduling, and using technology to collect, store, and analyze academic and behavioral data. PD was frequently provided through series of workshops, during which experts in each topic presented content to administrators and teachers. PD workshops typically employed a "train the trainer" model, such that district- or school-based leaders attended the workshops and were expected to then train their colleagues in the district or school. Other formats included short-term consultation with experts in the field and establishing structures that support MTSS components (e.g., data review meetings).

Process of Implementing RTI for Special Education Decision Making

In the beginning of the 2015–2016 school year, the RESA required RTI methods be included for SLD identification. A committee of 11 educators representing the RESA and two school districts led efforts to write the 78-page guidelines for SLD identification. As mentioned previously, the RESA allowed for either RTI methods or PSW methods from 2012–2013 until 2015–2016, depending on the integrity of local MTSS implementation. Most of the committee members who wrote the guidelines were trained as school psychologists. The document was adapted from a neighboring state's guidelines for SLD identification and reviewed by an expert in the field.

Guidelines for SLD Identification

Within the comprehensive psychoeducational evaluation, the multidisciplinary evaluation team is required to document responses to prespecified questions in order to determine if the student meets SLD eligibility criteria. The team addresses several questions to assess whether a student meets SLD impairment criteria: (a) Has the student been provided with learning experiences and instruction appropriate for age or state-approved grade/subject area standards in the general education setting (e.g., evidence of explicit, systematic core instruction with differentiation in the general education setting; evidence of intervention fidelity; sufficiently rigorous data documenting instruction to support the majority of students)? (b) Does a significant gap exist between the student's current level of performance and state-approved grade/subject area standards? (c) Has the student made sufficient or insufficient progress (i.e., rate of improvement) based on responses to intensive evidence-based intervention? (d) Has the student demonstrated inadequate achievement (e.g., below the 10th percentile when compared to peers) after intensive intervention? (e) What relevant behavior was observed during the required observations, and what is the relationship of the observed behavior to academic functioning? (f) Have all exclusionary factors been considered, and is any exclusionary factor the primary reason for the inadequate achievement or insufficient progress? (g) Are there educationally relevant medical findings?

and (h) Does the student require specially designed instruction? Interested readers are referred to the Appendix for additional details regarding these criteria.

After the team has determined that the student meets the criteria for an SLD, the team addresses three items to assess whether a student requires special education services: (a) What are the student's needs that could not be met through general education at the time of evaluation? (b) What accommodations, if any, can be made in the general education program to meet the student's identified needs and to allow the student to access the grade-level curriculum and meet the educational standards that apply to the student's current grade? and (c) What additional instruction does the student need that is not currently provided through the general education curriculum?

Case Data

This case study includes two types of data collected as part of typical programming: counts for students receiving special education services under the category of SLD and state assessment scores. Data are reported as they were available: from 2005–2006 until 2014–2015 for special education rates and from 2007–2008 until 2016–2017 for state assessment scores.

Student count data were submitted annually in the fall to the state department of education. Count data may be influenced not only by MTSS and the number of students identified as having an SLD, but also by students moving in and out of a district, the restructuring of districts/buildings, or students systematically choosing to attend schools outside of their assigned district to access specific types of special education programming. Student count data are reported by the district in which students received special education services, not the district where they resided.

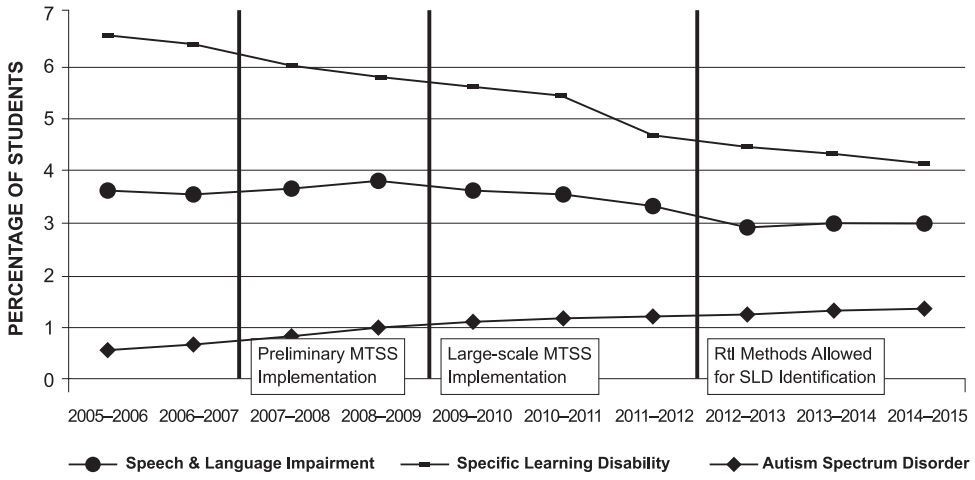
Students are assessed in grades 3–8 and 11 in ELA, math, science, and/or social studies. The state assessment changed in 2014–2015 to align with the Common Core State Standards (CCSS) and was administered online (and then became adaptive in 2015–2016). This shift reflected an emphasis on reading complex texts to build knowledge (as opposed to reading and writing skills) and finding evidence within those texts. ELA and math data for third graders and seventh graders are reported to represent the elementary and middle school levels. Social studies and science data for 11th graders are reported to represent the high school level; 11th graders did not take state assessments in ELA or math. ELA and math achievement for 11th graders were assessed through the SAT beginning in 2015–2016. Prior to this, their ELA and math achievement were measured through a battery of assessments, including the ACT.

Descriptive statistics were used to illustrate the changes in the percentage of students receiving special education services and the proficiency rates among all students on the state assessment over time. In order to examine the relationship of special education services within an MTSS on the achievement of students identified as having an SLD, additional analyses were conducted with a subset of students (see Barrett, Stevenson, & Burns, under review). The subset of students included those who had received special education services by the RESA for at least 3 years (from 2012–2013 until 2014–2015) and excluded students that moved in or out of the RESA in that time frame ($N = 3{,}796$). This increased the likelihood of adequate exposure to the MTSS model implemented and supported by the RESA. Of these students, 542 and 553 were identified as having an SLD and took the ELA and math state assessments in 2014–2015, respectively.

RESULTS

Between the 2005–2006 school year (4 years prior to large-scale MTSS implementation) and the 2014–2015 school year (6 years after MTSS implementation), across the 12 school districts, the number of students in special education decreased gradually, for a total decline of 19.10% (1,897 fewer students), and the number of students identified as having an SLD decreased gradually, for a total decline of 40% (1,270 fewer students). Figure 1 illustrates the trend in the percentage of the total population of K–12

Figure 1. Percentage of Total Population of K–12 Students Receiving Services for High-Incidence Disabilities



students receiving special education services for high-incidence disabilities (i.e., speech and language impairment [SLI] and autism spectrum disorder [ASD]). SLI and ASD data were included to provide a reference for interpretation of the SLD data. The three vertical lines denote the following: preliminary MTSS implementation, large-scale MTSS implementation, and the allowance for RTI methods in SLD identification, described earlier. As shown, the percentage of students receiving services under SLD decreased, while the percentage of students receiving services under SLI remained fairly constant and the percentage of students receiving services under ASD increased.

Figure 2 illustrates the percentage of the total population of K–12 students receiving services for SLD disaggregated by district. The thickest line represents the RESA, or the aggregate of the 12 districts. As in Figure 1, vertical lines denote milestones in MTSS implementation, described earlier. There is great variability across districts in their initial percentages of students identified as SLD in 2005–2006 and more recently in 2014–2015. Importantly, the aggregate line of decreasing percentages of SLD identification across the RESA does not represent all of the districts' trends equally. In fact, one district

Figure 2. Percentage of Total Population of K–12 Students Receiving Services for SLD

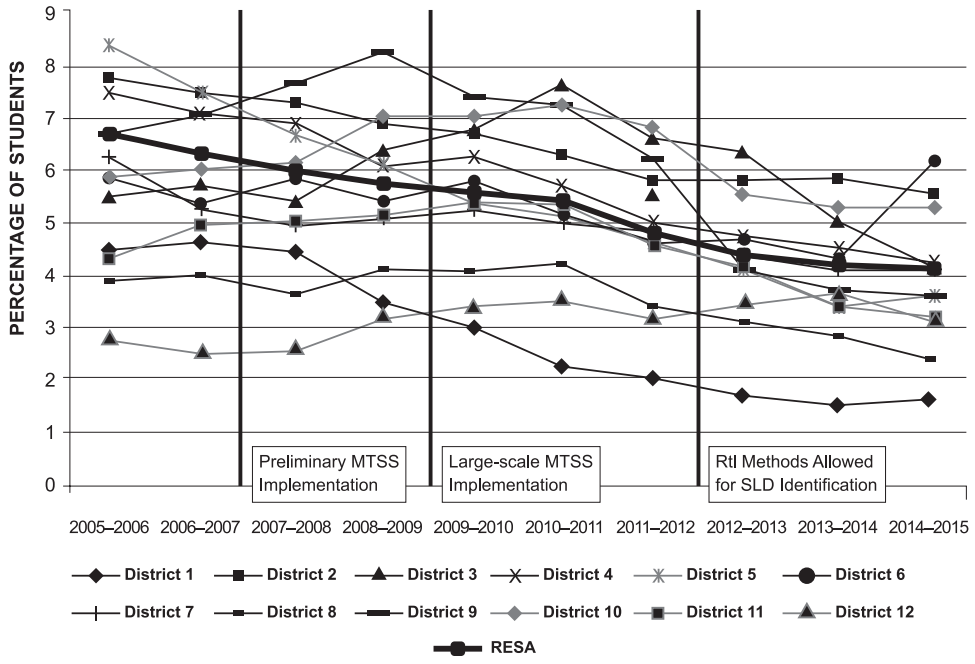
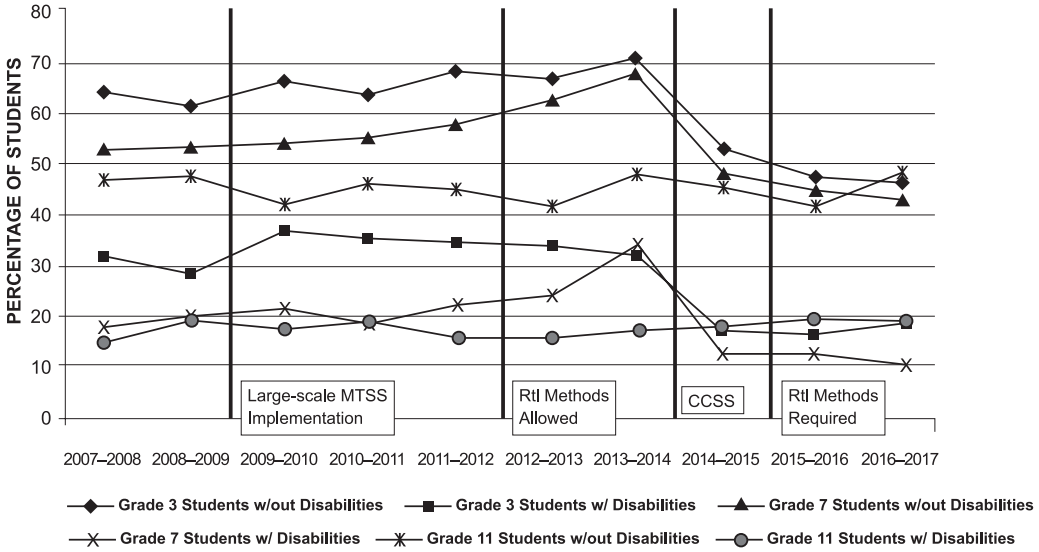


Figure 3. Percentage of Students Proficient on the ELA (Third and Seventh Grades) and Social Studies (11th Grade) State Assessments

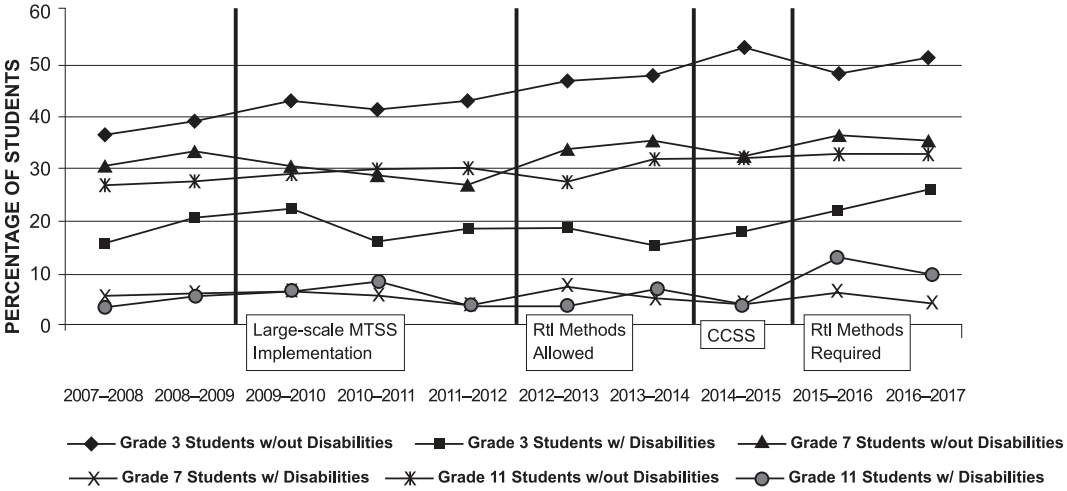


Note. CCSS = Common Core State Standards and denotes the change in the state assessment.

(i.e., District 12) experienced increases in the percentage of students identified as SLD; other districts (e.g., Districts 3, 9, and 10) experienced peaks and subsequent decreases; and still others remained fairly stable or inconsistent across time (e.g., District 6).

Figure 3 illustrates proficiency on the state assessment in ELA for third graders and seventh graders and in social studies for 11th graders, with and without disabilities, aggregated across the RESA. As in the previous figures, vertical lines denote MTSS milestones for context: large-scale MTSS implementation, the allowance of RTI methods for SLD identification depending on MTSS implementation in the local context, the change in the state assessment to align with the CCSS, and the requirement that RTI methods be used for SLD identification. Of note, an achievement gap persisted over 10 years despite large-scale MTSS implementation, with low rates of proficiency (i.e., less than 20%) among students receiving special education services in all reported grades.

Figure 4. Percentage of Students Proficient on the Math (Third and Seventh Grades) and Science (11th Grade) State Assessments



Note. CCSS = Common Core State Standards and denotes the change in the state assessment.

Figure 4 illustrates proficiency on the state assessment in math for third graders and seventh graders and in science for 11th graders, with and without disabilities, aggregated across the RESA. As in the previous figures, vertical lines denote MTSS milestones for context. Proficiency rates generally increased over time for third graders, with and without disabilities, and seventh and 11th graders without disabilities. However, an achievement gap between general education and special education students also persisted over 10 years despite MTSS implementation. Students receiving special education services had extremely low proficiency rates in Grades 7 and 11 in 2016–2017 (i.e., 10% or less).

Of the subset of students that qualified for services under the category of SLD and took the ELA state assessment ($N = 542$) and math state assessment ($N = 553$), only 8.1% and 2.4% were proficient, respectively, in 2014–2015.

DISCUSSION

This case study summarized MTSS implementation procedures and data across several years in 12 diverse school districts served by one RESA in the Midwest. Other settings are unlikely to have the same combination of idiosyncratic characteristics but are likely to encounter at least some of the contexts described (e.g., changes in state policy/law or the state assessment). Most notably, MTSS implementation was a process that occurred over almost a decade. Typical pre- and posttest approaches to measuring effectiveness are challenging because it was not always clear when MTSS implementation began or ended. In fact, some might argue MTSS implementation is never completed.

At the RESA level, rates of students receiving special education services over time decreased and proficiency rates for third graders, with and without disabilities, increased in math over time, even after an instrument change. These positive outcomes may be attributed to MTSS implementation holistically or to its specific evidence-based parts, but it is difficult to conclusively identify which of the many aspects of implementation contributed the most, or at all, given threats to internal validity. Despite these positive outcomes, MTSS implementation coincided with neutral or negative impacts for some students in some grades and content areas (see Figures 3 and 4). Results were inconsistent and challenging to interpret when looking across multiple districts, schools, grades, content areas, and students. From an administrative perspective where the allocation of resources is one of the chief priorities, this might be an unsatisfactory conclusion.

Methodological Considerations

In order for school districts to monitor the effectiveness of their own MTSS, two considerations emerge. First, MTSS implementation is unlikely to be episodic, such that the multiple components of MTSS may be implemented (with or without integrity) gradually over time, as described here. This may be particularly true when looking across multiple grades, schools, or districts (e.g., a district may buy screeners for kindergarteners through fourth graders, but not fifth through eighth graders; thus, screening may be implemented for some but not all grades within a district). However, staggered implementation (of components or across students) may not be structured enough to warrant multiple baseline designs. Additionally, the integrity of implementation may wax and wane over time, potentially corresponding with change in leadership or staff at the building level.

Second, it may be nearly impossible to disentangle the many factors or characteristics related to student achievement along with potential threats to internal validity such as history, instrument change, maturation, selection, and regression to the mean (Shadish, Cook, & Campbell, 2002). For example, in this particular case study, districts varied in their initial achievement, demographics, and willingness to implement MTSS (i.e., selection bias); the state assessment changed in 2014–2015 to align with the CCSS (i.e., instrument change); several districts changed CBM assessment programs and curricula (i.e., instrument change); administrative leadership changes impacted local policy and culture, including their

formal or informal support for MTSS; state law regarding teacher evaluation changed (i.e., history); state law requiring third-grade students be proficient on the state reading assessment in order to be promoted was implemented (i.e., history); and local special education programming changed (e.g., pullout or resource room programming versus inclusive programming). These threats to internal validity, common among all districts and schools, challenge practitioners when examining the effectiveness of their own MTSS implementation.

Variations in MTSS Implementation and Effectiveness Across Systems

MTSS implementation and effectiveness varied by district and the type of outcome examined (e.g., SLD identification rates; achievement among the general education, special education, or SLD subpopulations; achievement among elementary, middle, or high school; or achievement in various content areas). As described in the introduction of this article with reference to Balu et al. (2015), MTSS implementation issues present challenges to evaluation, whether the assessment of implementation is internal or external. In short, it is difficult for districts to use data to make definitive conclusions about effectiveness across all grades, outcomes, and subpopulations. Rather, MTSS effectiveness may be better investigated by formatively asking for whom it was effective, how, and under what conditions.

Variations may have also been due to lack of MTSS integrity in some contexts. Fidelity data were periodically collected through up to nine tools (e.g., the tiered fidelity inventory; Algozzine et al., 2014), three of which were required by the state department of education. Standardized administration of several of these tools requires the assistance of external administrators, who were not always available. This lack of adherence to standardized administration in some settings limits the accuracy of these measures; therefore, these data are not reported. Integrity may have also been facilitated or frustrated by consensus among stakeholders or lack thereof, which may have been exacerbated by personnel changes. Even though some PD initiatives were specifically geared toward consensus building, it is unclear how effective they were. Time may be a central component of consensus building, but implementation driven by funding and the urgency to improve student outcomes may not allow for all-inclusive consensus and relationship building.

Even though schools/districts may have had variations in implementation, the collaboration across districts through the RESA was important. Shared costs of PD and resources decreased individual costs for each district, which is important, given the costly nature of MTSS and improves sustainability. Collaboration also allowed for a social support network, which helped when encountering amorphous barriers such as resistant culture or personnel.

Importance of Tier 1

Effective MTSS implementation presumes core Tier 1 instruction that supports 80% of students (Batsche et al., 2005), explicitly addressed in the SLD guidelines (see Guidelines for SLD Identification section). Here, universal screening data may be reviewed to document adequate core instruction. Even if universal screening data suggest that core instruction is adequate by a large percentage of students meeting the benchmark, absences or moving schools/classrooms may suggest that core instruction has not been received by a particular student, which is also addressed in the SLD guidelines.

However, if the purpose of MTSS is not solely to prevent students from being identified as having an SLD or to increase scores on universal screeners but rather to prevent the long-lasting consequences of poor academic achievement (e.g., school dropout, unemployment; Fuchs et al., 2012), then consideration of the low percentage of students, with and without disabilities, achieving proficiency on the state assessment is paramount. The focus of effective MTSS implementation must be on core instruction (VanDerHeyden et al., 2016), including class-wide intervention. Results suggest that Tier 1 should be the priority across the RESA.

Persisting Low Rates of Proficiency for Special Education Students

The achievement gap between students with disabilities and those without persisted, even in MTSS. Defining and implementing specially designed instruction, or increasing the intensity of supplemental interventions, continues to challenge contemporary schools (VanDerHeyden et al., 2016). Furthermore, how the need for specially designed instruction or special education services contributes to SLD identification varies across the country (Cottrell & Barrett, 2016). Specialized expertise is required for effective MTSS implementation and to improve outcomes for the most challenging students. Readers are referred to Fuchs et al. (2012) for a comprehensive framework on how to conceptualize and implement Tier 3.

Using PD to Improve MTSS Implementation

PD that results in meaningful and measurable improvements in teacher practices and student outcomes continues to challenge practitioners and researchers alike. Not only does a growing body of research document the ineffectiveness of PD workshops (Desimone & Garet, 2015), PD workshops are also costly, with districts incurring costs for substitute teachers when classroom teachers attend PD during the school day, stipends for teachers to attend PD outside of work hours, fees for experts to come and present locally about an instructional practice or program, and/or registration and travel to and from the PD opportunity when the PD is not hosted by the school or district.

Many of the resources needed to effectively implement MTSS are PD costs. The RESA in this case study primarily approached PD through a "train-the-trainer" model, in which local "trainers" attended a series of PD workshops and were then expected to train local educators. In order for this model to be effective, one must presume that the trainers successfully acquired the skills and knowledge presented at the workshops; the trainers had the skills and access to successfully train local educators; and local educators then successfully acquired the skills and knowledge to more effectively work with students. Research suggests this is unlikely (e.g., Desimone & Garet, 2015).

More recently, the RESA has begun to engage in job-embedded PD and coaching, which has shown promise for effectively improving instructional practices (Knight, 2009). Another potential priority for the RESA should be to continue engaging in effective PD that strengthens Tier 1 core instruction and increases the specialized expertise of educators that deliver intensive, individualized Tier 3 intervention (e.g., special educators).

Recommendations for Practice

Several recommendations for practice might be made to further the implementation and effectiveness of MTSS for special education decision-making and student achievement.

1. Districts are encouraged to engage in effective PD, which includes coaching or consultation for direct service providers, and measure the effectiveness of their PD initiatives. This includes an explicit plan for providing PD/coaching for educators new to the district (i.e., recursive training) to mitigate the impact of educator turnover. PD/coaching for general education teachers providing core Tier 1 instruction and educators (e.g., special educators or interventionists) providing intensive Tier 3 services should be prioritized.
2. Districts are encouraged to engage in proactive and explicit collaboration and coordination across systems (e.g., elementary, middle, and high schools within a district or districts within a geographical region) and departments (e.g., general education, special education, research, and technology) to facilitate the many components of an effective MTSS, such as consensus building and buy-in; shared costs and resources; the coordination between tiers; and data collection, storage, analysis, and interpretation.
3. Districts are encouraged to engage in regular data reviews that not only include student outcomes, but also the integrity of MTSS implementation, the prevalence of educator turnover, and the need for or functioning of various types of data. Data regarding personnel changes may impact the

culture around MTSS and increase costs around PD/coaching and therefore should be addressed. Contemporary MTSSs experience "data overload" (Fuchs et al., 2012; VanDerHeyden et al., 2016); therefore, data reviews should explicitly address the pruning of assessment activities.

CONCLUSION

This case study contributed to the literature by documenting the implementation process of MTSS and RTI methods for SLD decision making in one RESA. Although other districts are unlikely to engage in an identical implementation process or experience identical threats to internal validity, most will encounter some similarities. As such, recommendations were made for future MTSS work among practitioners to improve implementation and effectiveness: (a) PD/coaching for educators that implement Tier 1 and Tier 3 instruction and intervention, (b) collaboration and coordination between systems and departments, and (c) data reviews that include the integrity of MTSS implementation, personnel changes, and the purpose of each type of data collected.

RESOURCES

For more information on MTSS and SLD decision-making, readers are referred to:

- Jimerson, S. R., Burns, M. K., & VanDerHeyden, A. M. (Eds.). (2016). *Handbook of response to intervention: The science and practice of multi-tiered systems of support* (2nd ed.). New York, NY: Springer. This is a comprehensive, edited text featuring chapters on the state-of-the-art MTSS design and research.
- http://www.rtinetwork.org/toolkit links to a collaboratively developed toolkit developed by the RTI Action Network, which provides guidance on best practice related to RTI-based SLD identification.

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APPENDIX. GUIDELINES FOR SLD IDENTIFICATION

Criterion	Examples of Criterion Assessment Methods
Has the student been provided with learning experiences and instruction appropriate for his or her age or state-approved grade/subject area standards in the general education setting?	• Evidence of explicit, systematic core instruction with differentiation in general education setting • Evidence of intervention fidelity • Data that instruction was sufficiently rigorous to support the majority of students, including comparison subgroup • Data that the student attended school regularly for instruction • Data on common factors such as history of absences; mobility between classrooms or schools; behavior that disrupts receiving instruction; student is part of a demographic subgroup with a low percentage of students meeting age or state-approved grade-level standards, or who are below benchmark
Does a significant gap exist between the student's current level of performance and state-approved grade/subject area standards?	• Documentation of performance discrepancy between the student's score and that of peers, pre- and postintervention

Criterion	Examples of Criterion Assessment Methods
Has the student made sufficient or insufficient (rate of improvement) based on his or her response to intensive evidence-based intervention?	• Documentation of core (Tier 1), targeted (Tier 2), and/or intensive (Tier 3) interventions including implementer, duration/frequency, implementation fidelity/support, how interventions were matched to student need, and progress monitoring data in graphical form • Documentation of at least two evidence-based interventions implemented, typically between 8–10 weeks, with increasing intensity between tiers • Evidence of insufficient student progress as documented by insufficient rate of response to intensive evidence-based intervention • Rate of progress is the same or less than same-grade peers, OR rate of progress is greater than same-grade peers but will not result in closing the achievement gap in a reasonable period of time, OR rate of progress is greater than same-grade peers, but intensity of resources necessary to obtain this rate of progress cannot be maintained in general education
Has the student demonstrated inadequate achievement (gap between student and peer group) after intensive intervention?	• Results evaluated from one or more of: grade-based data, state-based assessment data (e.g., progress monitoring data on curriculum-based measures); SAT/ACT; district/classroom assessment; standardized assessment • Students are below 10th percentile when compared to peers • After intensive intervention and core instruction, student does not achieve adequately for his or her age or meet state-approved grade/subject standards in one or more of eight SLD categories
What relevant behavior was observed during the required observations, and what is the relationship of the observed behavior to academic functioning?	• At least one systematic observation (i.e., direct observation of student learning in a natural setting relevant to the area of student academic functioning being observed) is completed • Teacher interview for input regarding the observation, including history of Tier 2 and Tier 3 interventions previously received, is completed
Have all exclusionary factors been considered, and is any exclusionary factor the primary reason for the inadequate achievement or insufficient progress?	• Documentation of data that student's insufficient progress is not due to environmental, cultural, or economic factors; limited English proficiency; lack of appropriate instruction in the identified area of concern (including irregular attendance, or high mobility); or other impairment is the primary reason explaining inadequate achievement/insufficient progress
Are there educationally relevant medical findings?	• Student's medical information/history, as pertinent to the eligibility determination, is reviewed
Does the student require specially designed instruction?	• Evaluate whether student needs interventions that differ significantly in intensity and duration from what can be provided through general education resources alone

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