Response to Intervention (RTI)/Multi-Tiered Systems of Support (MTSS): A Nationwide Analysis

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Abstract

Today, all 50 states have adopted some form of a tiered support system. Different levels of adaption were observed as a result of diverse considerations from state education agencies. We adopted the secondary research approach and carefully reviewed the information presented on each state's DOE Website. Through this research, we developed the first comprehensive list of the most up-to-date analyses of each state's RTI/MTSS model and its implementation support. The present study also extended the research on several significant factors contributing to building a concrete RTI/MTSS model but hasn't been given sufficient attention. The findings reflected states' efforts in advancing the RTI/MTSS framework to address all students' diverse needs in one comprehensive tiered support system. We outline all the existing methods, tools, and strategies to support education agencies in developing, advancing, or sustaining their tiered support models.
Keywords: *Multi-Tiered Systems of Support, MTSS, Response to Intervention, RTI,*

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Response to Intervention/Multi-Tiered Systems of Support: A Nationwide Analysis
Introduction

The terminology referring to the tiered support system has gone through a consistent shift from Response to Intervention (RTI) to the Multi-tiered Systems of Support (MTSS) over the past decade. The Center on Multi-tiered Systems of Support (CMTSS) explained the changing terms as a need to rebrand RTI from special education and to reflect the combination of academic and behavioral tiered systems. Thus, MTSS is a more comprehensive model favored by education officials (Center on Multi-Tiered Systems of Support, 2019). MTSS also represents a focus on developing the whole child approach, which not only focuses on academic or behavioral performance but also emphasizes social-emotional development (e.g., FL; Florida Department of Education, 2022), health (e.g., NJ; New Jersey Department of Education, 2022), culturally responsive and sustaining education (e.g., NY; New York State Education Department, 2020), mental health (e.g., CA; California Department of Education, 2022), and other aspects of children's needs. The focus on this broad range of support indicates a wide and profound reform in the education system across the United States.

Currently, all 50 states have adopted a tiered support system (The National Implementation Research Network, 2021b). However, consistency is lacking across the different tiered support system models. According to CMTSS, there were 32 MTSS states, nine RTI states, and nine states that used a state-specific model in 2019 (Center on Multi-Tiered Systems of Support, 2019). Notably, there was a 52% increase in the number of states adopting MTSS as the term for the tiered support system from 2017 ($n = 21$) to 2019 ($n = 32$). Given the differences in models and inconsistency in terminology, this review will analyze states' tiered support systems and generate suggestions for advancing the current research and practice.

Response to Intervention (RTI)

RTI was accepted as an alternative way to identify students with specific learning disabilities (SLD) in the Individuals with Disabilities Education Improvement Act (IDEA) 2004 reauthorization. Later, RTI developed into an early identification and intervention approach to provide tiered support for improving students' academic learning (Fuchs & Fuchs, 2017). There are two approaches to the RTI model (IRIS Center, 2022a). First, the problem-solving protocol approach (PS) refers to a model where a school-based team works together to identify students' learning needs, make available of variety of interventions, implement the appropriate intervention, and evaluate the instruction. Second, the standard protocol approach (SP) uses a pre-planned validated intervention for all identified students to address various needs. The RTI framework delivers tiered support to students based on their academic needs through both approaches. The typical three-tiered model involves the following tiers: (a) all students take a universal screening test, and students at risk of failure are identified, (b) all students receive effective classroom tier 1 instruction in the general education setting, (c) at-risk students (10% to 15% of all student population) who need supplemental instruction, or a replacement of the core curriculum, are supported with tier 2 instruction in a small group setting using the evidence-based interventions or strategies, and (d) inadequate responders to tier 2 interventions receive the

most intensive individualized interventions at tier 3 (Fuchs & Fuchs, 2017; IRIS Center, 2022b). A strong core curriculum and high-quality classroom instruction are the foundations of an effective MTSS framework. These foundations not only differentiate RTI from other special education identification procedures but also promote RTI as a mechanism that acknowledges at-risk students in general education and serves all the students who need academic support throughout school (Berkeley et al., 2009).

Multi-Tiered Systems of Support (MTSS)

Today, many federal agencies, state education agencies (SEA), and local education agencies (LEA) use the term "MTSS" to refer to the tiered support system. MTSS is "a proactive and preventative framework that integrates data and instruction to maximize student achievement and support students' social, emotional, and behavior needs from a strengths-based perspective" (Center on Multi-Tiered Systems of Support, 2022). This definition highlights two main functions of the MTSS framework, to provides educators with a data-based decision-making system for identifying students' performance levels and implementing targeted interventions. It also encourages students' holistic development by providing academic, behavioral, and social-emotional support. There are four essential components of the MTSS model: (a) screening, also known as universal screening, which is a systematic process to using effective screeners to assess and identify a student's current achievement level; (b) a multi-level prevention system, which utilizes evidence-based instruction and interventions to support students in tier 1 classroom instruction, tier 2 small group intervention with at-risk students, and tier 3 individualized interventions for students not responding to the small group support; (c) progress monitoring, which assesses and provides a report on students' progress and use of a data system to gauge students' responsiveness to the instruction; and (d) data-based decision making, which involves data collection and data analysis, in screening and progress monitoring to make decisions regarding instructional level, instruction and intervention strategy selection, placement in the tiered system, and referral to special education services (Center on Multi-Tiered Systems of Support, 2022a).

MTSS was broadly designed for an expanding landscape to encompass all the best practices, models, and strategies in constructing the most effective and comprehensive education model. The US Department of Education (USDE), Office of Special Education and Rehabilitative Services (OSEP) MTSS in the October 23rd, 2015, "Dear Colleague" letter as an umbrella term that included RTI as the academic support and PBIS as behavior support model (USS Department of Education Office of Special Education and Rehabilitative Services, 2015). In practice, some states also included different system-wide initiatives under the MTSS model and made the RTI/MTSS framework an integrated model (Berkeley et al., 2020; Bradley & Danielson, 2004).

Berkeley and colleagues provided a snapshot of the development and implementation of the RTI model in 50 states one year after the final regulations for IDEA had passed (Berkeley et al., 2009). In the study Berkeley and colleagues collected information by reviewing the information from the state department of education (DOE) websites and meeting representatives in each state DOE. They reported each state's data regarding RTI models, specific learning disabilities

identification methods, intervention components, and implementation progress. Berkeley et al. (2009) presented an essential picture of each State's RTI model and its implementation at the early stage. A decade later, Berkeley and her team (2020) revisited all the 50 states' websites of DOE and updated the national picture of the RTI/MTSS progress, including models of the tiered support system and the relationship between the RTI/MTSS model and special education. Both articles provided valuable data for researchers, state education agents, local education agents, and policymakers to understand the development of the tiered support system in each state and provide examples and resources for implementation. However, a comprehensive review of the most current tiered support system that covers the most critical perspectives of the tiered model and its' existing implementation supports is needed.

An essential starting point for a comprehensive review is understanding the definitions and key components of the tiered support system. Similarly, successful implementation is vital in elevating this educational framework in practice and presenting its effectiveness. Implementation is an essential but challenging part of the tiered systems of support (Center on Multi-Tiered Systems of Support, 2022b). It is expected that there will be inconsistencies in how each state's models were designed. States are likely choose to use frameworks from different sources when developing their models. For example, California and Colorado used the Implementation Science (IS) frameworks by F(ixsen et al., 2005)to guide practices in implementing the tiered support system. IS strives to bridge the gap between scientist-controlled research and practitioner-implemented real-life condition (Cook & Odom, 2013). Understanding what implementation perspectives each state promoted in their guidance is important when generalizing future implementation suggestions to advance states' practice.

The present review aims to provide an updated and comprehensive analysis of each state's RTI/MTSS framework. We collect and present data from each State's DOE website. Government guidelines regarding the implementation support to LEA were also analyzed. The following research questions guided the investigation:

1. What was the name and structure of the tiered support system in each state tiered support system?

2. What were each state's tiered support system's focused areas?

3. How did each state identify students with SLD—discrepancy approach, RTI approach, or use other alternative research-based procedures?

4. Were the services provided within the tiered support system or out of the system for special education, gifted education, and English Language Learners (ELL)?

5. What curriculum or programs were used for each Tier?

6. What were the common implementation factors addressed in each state's RTI/MTSS implementation guidance or strategic plan?

Method

The present study adopted the secondary research method approach, secondary research utilizes existing data to summarize, reorganize, and collate (Avison & Stewart, 1986; Johnston, 2014).

To investigate the tiered support system in all 50 states, we carefully reviewed the information presented on each state's DOE Website. To collect data, we located the website of each state DOE using a google search, then applied a keyword search on each website's search engine to identify the first level modifier.Searching terms included: *Response to Intervention, RTI, Response to, Multi-tiered Systems of Support, MTSS, Tiered Support, Tiered System, and tier*. We then used the simplest form of the keywords to reach a high quality of the search results after gaining access to the webpage of the tiered support system. Keywords included *component, element, tier 1, universal, tier 2, small group, targeted, tier 3, individual, curriculum, instruction, special education, learning disabilities, SLD, problem-solving, standard treatment, implementation, fidelity, training, professional development, family, community, cultural, leadership, stakeholder, and gifted.*

Data Analysis

A directed content analysis was used to identify and categorize the most comprehensive descriptors of the tiered systems of support model and its implementations (Hsieh & Shannon, 2005). Several codes were included as a result of a keywords analysis of the tiered systems of support model and Implementation Science (IS) framework. The predetermined codes were included to reflect the features of the tiered model and the elements of its implementation, such as the model's name, definition, and implementation fidelity.

The first author applied predetermined codes for a sample coding on the information provided from the DOE websites of three states. The test results led to the formulation of a formal codebook that reflected the most comprehensive data analysis on the tiered support system and its implementation support.

Coding Conventions

This study only incorporated data included on each DOE website. Directly linked contents were visited, and the data were collected. These contents include government guidance, reports, professional development materials, and other government documents. Variables included in the investigation were: the name of the model, focused areas, the relation between the model and services for special education, gifted education, and ELL, RTI approach, curriculum or programs used for Tier 1, Tier 2, and Tier 3, the method to identify students with SLD. We also checked the most common RTI/MTSS implementation elements on a state's DOE website. Specific codes can be found in Table 1.

We divided the abovementioned variables into two main groups: direct coding variables and analyzed coding variables. Direct coding variables referred to the variables that were extracted data directly from states' DOE without further analysis, which included: (a) the name of the model, (b) focus areas, (c) the method of SLD identification, (d) involvement of implementation science, (e) implementation fidelity check, (f) implementation support for professional development, (g) family and community engagement, (h) cultural diversity and culturally responsiveness, and (i) leadership/stakeholder engagement.

Table 1

Main Codes and Subcodes

Main Codes	Subcodes
General Characteristics Coding	
Name of the model	1 = RTI 2 = MTSS 3 = RTI and MTSS interchangeably 4 = Others
Focus areas	A = Academic B = Behavior S = Social emotional O = Others
Method of SLD identification	R = RTI I = IQ-discrepancy O = Others
RTI Approach	PS = Problem-solving model SP = Standard treatment model H = Hybrid of standard protocol and problem solving BP = Best Practice example available
The relationship between the model and special education	SI = Special education served within the tiered system SO = Special education served out of the tiered system NS = No specific information can be found
The relationship between the model and gifted education	GI = Gifted education served within the tiered system GO = Gifted education served out of the tiered system NS = No specific information can be found
The relationship between the model and English Language Learner (ELL) education	EI = ELL served within the tiered system EO = ELL served out of the tiered system NS = No specific information can be found

Table 1 (continued)

Curriculum used for Tier 1, Tier 2, and Tier 3	AP = Use approved curriculum SC = Have suggested curriculum RM = Have no listed curriculum but have remedial methods like: • Repeated opportunities for practice and review. • Given additional opportunities for correction and feedback. • Increased time on task, engaged in instruction and practice. • Drill repetition and/or practice review
Implementation Support Coding • Using implementation science • Implementation fidelity check • Implementation support for professional development • The implementation emphasizes family and community engagement • The implementation emphasizes cultural diversity and cultural responsiveness • The implementation emphasizes leadership/stakeholder engagement	Y= Have detailed documents provide guidance NS = Nothing specific can be found

For the analyzed coding variables, we evaluated critical concepts of the context to generate the most suitable answer. We explained each coding variable's definition, meaning, descriptors, and application. These analyzed coding variables included (a) curriculum or programs used for three tiers, (b) the method of identifying students with learning disabilities, and (c) the relationship between the tiered model and special education, gifted education, and ELL.

Four subcodes were used to categorize curricula or programs used for tier 1, tier 2, and tier 3 instruction: (a) state have approved curricula; (b) state have suggested curricula are the instructional materials suggested by a state government for intervention; (c) state have no listed curricula materials but has remedial methods or strategies for instruction such as differentiated

instruction, repeated opportunities for practice and review, and additional opportunities for correction and feedback; and (d) no listed curricula materials and no suggested remedial methods of instruction.

We created codes to reflect the SLD identification methods according to the requirements of IDEA: (a) RTI model, a state adopts an RTI process to identify the SLD population; (b) IQ-achievement discrepancy model, a state uses an IQ-achievement discrepancy model for decision making on SLD identification by accessing if there exists a significant difference between a student's IQ test and student's score in standardized academic assessments; and (c) other, a state uses other alternative research-based procedures to identify SLD.

The relationship between the tiered model and special education, gifted education, and ELL refers to how a state delivers student support in the tiered system. Some states provided special education within the tiered system, while others made special education a separate service apart from the tiered support system. We code accordingly to reflect if the specialized service was provided within or out of the tiered support system.

Interrater Agreement

Three authors double-coded four closed-ended questions to check for agreement: (a) what was the name of the state-tiered support system? (b) how many tiers existed in the state model? (c) what was the focus area(s)? and (d) which approach did the State adopt: problem-solving or standard treatment? All of the coders were doctoral students from special education doctoral program. The first author consulted with the second author, an RTI/MTSS model expert, and performed the rater training. Four states' data were randomly chosen for coding practice. In the present research, an agreement was defined as all the raters having the same result, and a disagreement meant multiple different results existed. Twenty states' data were coded for a reliability check after all the raters reached 100% agreement on the practiced coding sample. The first author coded all 50 states' data, while the third and fourth authors each independently coded 15 and five states' data. The result of the initial agreement was 83%, and the first author and the other authors scheduled a meeting to discuss the data. After the discussion, the agreement achieved was 95%. The first author then consulted the second author to resolve the disagreement. After consensus, the raters reached 100% agreement on 20 states' data being coded. The interrater agreement was calculated by the total number of agreements divided by the total number of agreements plus disagreements and multiplied by 100%.

<div align="center">

Results

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Data from each State's DOE website were collected, analyzed, organized, and presented in Table 2.

Table 2

RTI/MTSS Model in Each State (2022 Jun)

State	Model	FA	SLDI	Approach	RSE	GE	ELL	Tier 1 C&I	Tier 2 C&I	Tier 3 C&I	IS	IF	PD	FE	CD	LE
AL	2	A,B	R,O	SP	SO	GI	EI	SC	NS	NS	NS	Y	Y	Y	NS	Y
AK	3	A,B	R,I,O	PS	SI	NS	NS	NS	NS	NS	NS	Y	NS	NS	NS	NS
AZ	2	A,B,S	R,I,O	NS	SI	NS	NS	SC	SC	SC	NS	Y	Y	Y	NS	NS
AR	3	A,B,S	R,I,O	PS	SI	NS	NS	NS	NS	NS	NS	Y	Y	NS	NS	Y
CA	2	A,B,S,O	R,O	BP	SI	GI	EI	SC	SC	SC	Y	Y	Y	Y	Y	Y
CO	2	A,B,S	R,O	PS	SI	GI	NS	SC	SC	SC	Y	Y	Y	Y	Y	Y
CT	4	A,B,S,O	R,O	PS	SI	NS	NS	SC	SC	SC	NS	Y	Y	Y	Y	Y
DE	2	A,B,S,O	R,O	PS	SI	GI	EI	SC	SC	SC	NS	Y	Y	Y	Y	Y
FL	2	A,B,S	R,O	PS	SI	GI	EI	RM	RM	RM	NS	Y	Y	Y	Y	Y
GA	2	A,B,S,O	R,O	SP	SI	GI	EI	SC	SC	SC	NS	Y	Y	Y	NS	Y
HI	2	A,B,S	NS	NS	NS	GI	EI	NS	NS	NS	NS	Y	NS	NS	NS	NS
ID	2	A,B,S	R,O	PS	SO	GI	NS	SC	SC	SC	NS	NS	NS	Y	NS	Y
IL	2	NS	NS	NS	NS	NS	NS	NS	NS	NS	Y	NS	NS	NS	NS	NS
IN	2	A,B,S	R,O	PS	NS	NS	NS	SC	NS	NS	Y	Y	Y	Y	Y	Y
IA	3	NS	R,O	PS	SI	GI	EI	NS	NS	NS	NS	Y	Y	NS	Y	Y
KS	2	A,B	R,O	H	SO	NS	NS	RM	RM	RM	NS	Y	Y	NS	Y	Y
KY	2	A,B,S	R,I,O	PS	SI	GI	EI	SC	SC	SC	NS	NS	Y	Y	Y	Y
LA	2	B,S	R,O	NS	SI	NS	NS	NS	NS	NS	NS	NS	Y	Y	NS	Y
ME	2	A,B,S	R,O	BP	NS	GI	EI	SC	SC	SC	Y	Y	Y	Y	NS	Y
MD	2	A,B	R,O	BP	SO	GI	EI	RM	RM	RM	NS	Y	Y	Y	NS	NS

State	Model	FA	SLDI	Approach	RSE	GE	ELL	Tier 1 C&I	Tier 2 C&I	Tier 3 C&I	IS	IF	PD	FE	CD	LE
MA	2	A,B,S	R,I,O	BP	NS	NS	NS	SC	SC	NS	Y	Y	Y	Y	Y	Y
MI	2	A,B,S	R,O	PS	SI	GI	EI	RM	RM	RM	Y	Y	Y	Y	NS	Y
MN	2	A,B,S	R,I,O	PS	SI	NS	EI	RM	RM	RM	Y	Y	Y	Y	Y	Y
MS	2	A,B,S	R,I,O	PS	SI	GI	EI	AP	AP	AP	NS	Y	NS	Y	NS	Y
MO	2	A,B,S	R,I,O	BP	SI	GI	NS	NS	NS	NS	NS	NS	NS	Y	Y	Y
MT	2	A,B,S	R,I,O	PS	SI	NS	EI	SC	SC	SC	Y	Y	Y	Y	Y	Y
NE	2	A,B,S	R,I,O	PS	SI	GI	EI	RM	RM	RM	NS	Y	Y	Y	NS	Y
NV	4	A,B,S	R,I,O	PS	SI	NS	NS	NS	NS	NS	Y	NS	NS	NS	NS	NS
NH	2	B,S	R,I,O	PS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
NJ	3	A,B,S,O	R,I,O	PS	SI	NS	EI	RM	RM	RM	Y	NS	Y	Y	Y	Y
NM	4	A,B	R,I,O	PS	SI	GI	EI	SC	SC	NS	NS	NS	Y	NS	Y	Y
NY	2	A,B,S,O	R,O	PS	SI	NS	EI	NS	NS	NS	Y	Y	Y	Y	Y	Y
NC	2	A,B,S	R,O	PS	SI	NS	NS	NS	NS	NS	NS	NS	NS	Y	NS	NS
ND	2	A,B,S	R,I,O	PS	SI	NS	EI	RM	NS	NS	NS	NS	NS	NS	NS	NS
OH	2	A,B,S	R,O	NS	SI	NS	EI	NS	NS	NS	NS	NS	NS	NS	NS	NS
OK	4	A,B	R,I,O	PS	SI	GI	NS	NS	NS	NS	Y	Y	Y	Y	NS	Y
OR	3	A,B,S	R,O	PS	SI	NS	NS	SC	SC	SC	NS	Y	NS	NS	Y	Y
PA	2	A,B,S	R,I,O	PS	SI	NS	NS	SC	SC	SC	Y	Y	Y	Y	NS	Y
RI	2	A,B,S	R,I,O	PS	SI	NS	EI	SC	SC	SC	NS	Y	Y	Y	Y	Y
SC	2	A,B,S	R,I,O	PS	SI	GI	NS	NS	NS	NS	Y	NS	Y	NS	NS	Y
SD	2	A,B	R,I,O	PS	SI	GI	EI	RM	RM	RM	NS	Y	Y	Y	NS	Y
TN	2	A,B,S	R,O	PS	SI	GI	EI	RM	RM	RM	NS	Y	NS	Y	NS	Y

State	Model	FA	SLDI	Approach	RSE	GE	ELL	Tier 1 C&I	Tier 2 C&I	Tier 3 C&I	IS	IF	PD	FE	CD	LE
TX	2	A,B,S	R,I,O	PS	SI	GI	EI	NS	NS	NS	NS	NS	Y	NS	NS	NS
UT	2	A,B	R,I,O	PS	SI	NS	NS	NS	NS	NS	NS	Y	Y	Y	Y	Y
VT	2	A,B,S	R,I,O	PS	SI	NS	EI	RM	NS	NS	NS	Y	Y	Y	Y	Y
VA	2	A,B,S	R,I,O	PS	SI	GI	EI	RM	NS	NS	Y	Y	Y	Y	Y	NS
WA	2	A,B,S	R,I,O	PS	SI	NS	EI	RM	RM	RM	Y	Y	Y	Y	NS	Y
WV	2	A,B,S	R,O	PS	SI	GI	EI	NS	NS	NS	NS	NS	NS	Y	NS	Y
WI	4	A,B,S	R,I,O	PS	SI	GI	EI	SC	RM	RM	NS	Y	NS	Y	Y	Y
WY	2	A,B,S	R,I,O	SP	SI	NS	EI	NS	NS	NS	NS	Y	Y	NS	NS	NS

Note. FA = Focused Area; SLDI = SLD Identification; RSE = Relationship with Special Ed; IS = Implementation Science; IF = Implementation Fidelity; PD = Professional Development; FE = Family Engagement; CD = Cultural Diversity; LE = Leadership Engagement; GE = Gifted Education; GI = Gifted Education service within the model; ELL = English Language Learner; EI = English Language Learner service within the model; C&I = Curriculum and Instruction; A = Academic; B = Behavior; S = Social emotional; O = others; Specific; R = RTI; I = IQ-discrepancy; SP = Standard Protocol; PS = Problem-solving approach; H = Hybrid of standard protocol and problem solving; BP = Best Practice example available; SI = Special education service within the tiered system; SO = Special education service out of the tiered system; AP = Approved Curriculum; SC = Suggested Curriculum; RM = have no listed curriculum but have remedial methods or strategy; NS = not specified/unclear; Y = Have detailed documents provide guidance.

The Tiered Structure

All states implemented the three-tiered model except for two: Illinois, and Georgia. There was no available information found from the Illinois DOE and Georgia claimed to have a four-tiered pyramid but operates within a three-tiered model (Georgia Department of Education, 2022). In the tiered model, each tier is built upon the other, with tier 1 at the foundation level. Tier 1 had several terms, including tier I (e.g., AL), universal instructional level (e.g., AK), core instruction level (e.g., AR), universal support level (e.g., KY), universal interventions (e.g., SD), and universal level (e.g., UT). Summarized characteristics of tier 1 for each State included (a) class-wide intervention for all students; (b) high quality scientific, research-based instruction, (c) general education teacher implemented instruction; and (d) general education classroom setting intervention.

Tier 2 is designed to serve approximately 10-15% of the student population who need additional instruction. Tier 2 includes the terms tier II (e.g., GA), targeted instruction level (e.g., AK), supplemental instruction (e.g., AR), targeted or supplemental level of support (e.g., KY), and targeted and small group interventions (e.g., NJ). Critical features of tier 2 instruction and interventions were (a) small group instruction with at-risk students, (b) supplemental or additional instruction based on the core instruction, (c) use of research or evidence-based interventions and instructions, and (d) instructed by trained and knowledgeable school personnel including classroom teacher, paraprofessional, and elective instructors.

The most intensive tier 3 is designed to meet the needs of approximately 1-5% of students. Tier 3 is also known as tier III (e.g., AL), Intensified Instruction (e.g., AK), intensive and Individual Interventions (e.g., MD), Intensive Interventions (e.g., NJ), and Tertiary Intervention (e.g., NM). Traits of tier 3 include (a) individualized instruction; (b) evidence-based intervention with increased duration, frequency, or intensity; and (c) content provided by a specialized teacher or content specialist.

Name for the Tiered Support System

Forty states used MTSS or a modified name from MTSS for their tiered support system (e.g., GA, KY). The states that used MTSS to refer to the tiered support system used it as an umbrella term. For example, Florida used MTSS and indicated it "involves the systematic use of multi-source assessment data to most efficiently allocate resources to improve learning for all students, through integrated academic and behavioral supports" (Florida Department of Education, 2022).

Five states used a unique name or term to refer to the tiered support system. These states included the following: Connecticut Comprehensive School Counseling Framework (CCSCF; Connecticut State Department of Education, 2022), Nevada Integrated Student Supports (NISS; Nevada Department of Education, 2022), New Mexico's Multi-Layered Systems of Support (MLSS; New Mexico Public Education Department, 2022), Oklahoma Tiered Intervention Systems of Support (OTISS; Oklahoma State Department of Education, 2022), and Wisconsin's Framework for Equitable Multi-Level Systems of Support (MLSS; Wisconsin Department of Public Instruction, 2022).

Five states used the term RTI and MTSS interchangeably. For example, Arkansas indicated that "Response to Intervention (RTI) is a multi-component, general education model, designed to identify students who may be at risk for learning or behavior challenges, offer support, and monitor progress" (Arkansas Department of Education, 2022). Arkansas stated that "Response to Intervention (RTI) integrates assessment and intervention within a school-wide, multi-tiered systems of support (MTSS) to maximize student achievement and support students' social, emotional, and behavior needs."

Focused Areas

Most states included academic, behavioral, and social-emotional support in their tiered model (*n* = 32). Eight states listed academic and behavioral as two main focus areas. Two states (LA, NH) only included behavior and social-emotional perspectives in the support system. Except for the core focus on academic, behavior, and social-emotional support, there were various focus areas in six states. Delaware integrated health and wellness, professional learning, and family involvement; New Jersey emphasized health; California and Georgia included mental health; and New York and Connecticut highlighted cultural responsiveness.

Approaches

According to the IRIS Center, the main difference between the PS and the SP approach is in tier 2. In the PS approach, the RTI/MTSS team makes instructional decisions, and various interventions are offered based on the student's individual needs and performance data. For the SP approach, one person may deliver the intervention and make the instructional decisions. A standard and validated intervention addresses different skills to meet student needs (The IRIS Center, 2022).

As shown in Table 2, most states adopted the PS approach (n = 36). Within the PS states, several did not specify whether the approach covered all the aspects of focused areas (e.g., academic, behavior, social-emotional) or only addressed one or several areas. Five states provided the best practice examples of their model (CA, ME, MD, MA, MO). For example, California DOE provided best practice models through an exemplary CA MTSS Sites interactive map. In the map, different colored dots presented the explanatory sites on different domains (e.g., administrative leadership, family and community engagement, and inclusive instruction support; California Department of Education, 2022). No specific information can be found in the five states (AZ, HI, IL, LA, OH). Three states implemented the SP approach (AL, GA, WY). Hybrid approaches were adopted only in Kansas. It was stated in the Kansas Multi-Tier System of Supports Structuring Guide for Systems 2020-2021 Academic Year that:

> To ensure effective and efficient response by the system, the Kansas MTSS uses a hybrid model that includes standard protocol interventions and problem-solving… standard protocol interventions are preidentified interventions that allow for immediate response when a student's instructional needs are matched to those interventions. In addition to the protocol interventions, the system must also include problem-solving to adjust interventions when protocol interventions are not matched to student needs or if adequate progress is not being achieved (Kansas Department of Education, 2021).

SLD Identification Methods

Twenty-seven states allowed using any of the three identification methods for evaluating the qualification of special learning disabilities (SLD; e.g., KY, NM). Twenty-one states excluded the use of the IQ-Discrepancy Model. They kept the RTI model and alternative methods to determine the eligibility for receiving the special education service under the category of SLD (e.g., GA, TX). In most cases, the alternative research-based procedures and methods were presented as a combination of several elements, such as classroom-based and state-based assessments, which showed students' patterns of strengths and weaknesses, observations (e.g., GA), and input from parents (e.g., CT). We could find no specific information for Hawaii and Illinois concerning SLD identification methods,

Regarding the RTI model, some states used different terms to describe the identification method. For example, New Mexico adopted the description "Dual Discrepancy and the Three-Tiered Model of Student Intervention" (New Mexico Public Education Department, 2022). This model was described as using RTI as an additional requirement on the tiered model, which supported the evaluation of performance and learning rate discrepancy between the student and peers. West Virginia state policy referred to the "WVTSS process" as a substitute for RTI in determining eligibility for a specific learning disability within the tiered support system (West Virginia Department of Education, 2022). In the same fashion, Wisconsin adopted the MLSS (Multi-Level System of Support) process instead of using the term RTI process (Wisconsin Department of Public Instruction, 2022).

Special Education, Gifted Education, ELL Education, and Their Relationship with the Tiered Support System

Data showed that 40 states provided special education service within the tiered support system (e.g., NE, SC), four states delivered the service outside the system (AL, ID, KS, MD), and six states did not specifically illustrate whether special education should be provided inside of the system or through other routes (HI, IL, IN, ME, MA, NH). More than half of the states included ELL in the tiered support system; no detailed description could be found in 20 states. Twenty-five states included gifted education in the tiered support system. For example, Tennessee stated that it included students identified as gifted in the RTI/MTSS Tier 1 core instruction (Tennessee Department of Education, 2022). The other 25 states did not specify special education's relationship with the RTI/MTSS system.

Curriculum or Program Used for Each Tier

In tier 1, only Mississippi had a list of approved curricula, 18 states had a suggested curriculum, 13 states had no listed curriculum but had remedial methods or strategy, and no specific information could be found on 18 states' DOE websites. For tier 2, one state had a list of approved curricula (MS), 15 states had a suggested curriculum, 11 states had no listed curriculum but had remedial methods or strategies, and no specific information could be found on 23 states' DOE websites. For Tier 3, while half of the states did not address the curriculum used, the other states either had approved ($n = 1$), suggested ($n = 13$), or indicated remedial strategies ($n = 11$).

Implementation Support

The most common elements addressed in states' RTI/MTSS model implementation included introducing the implementation science for the systemic changes, highlighting implementation fidelity, providing professional development, engaging the family in the process, emphasizing cultural diversity, and underlining leadership engagement (Table 2).

Implementation Science

Eighteen states used Implementation Science in guiding the states' RTI/MTSS implementation practices. For example, Nebraska adopted the Implementation Stages framework, a critical implementation framework from the National Implementation Research Network of implementation science (Nebraska Department of Education, 2022). California used the Implementation Stage framework and Implementation Drivers framework to support the MTSS systemic change (California Department of Education, 2022b).

Implementation Fidelity

Thirty-five states addressed applying implementation fidelity in the RTI/MTSS implementation. No specific information was found for the other states. Kansas provided a great example of monitoring fidelity in all aspects and stages of the implementation. Specifically, Kansas used fidelity checks to control and support professional development, instruction, and tiered intervention (Kansas State Department of Education, 2022). It also highlighted the leadership team's critical role in ensuring implementation fidelity.

Professional Development for RTI/MTSS Implementation

Most states highlighted the professional development for RTI/MTSS implementation ($n = 35$). For example, Wyoming established a series of professional development materials for the practitioners to understand and operate the MTSS model (Virginia Department of Education, 2022b; Wyoming Department of Education, 2022).

Family Engagement

More than half of the states required involving the family in the process of the RTI/MTSS implementation ($n = 35$). Virginia addressed family and community partnerships. It provided support for the families with a Family Engagement Webinar to develop their understanding of the tiered support model and the routes they could be involved in the VTMTSS system (Virginia Department of Education, 2022a).

Culture Diversity and Culturally Responsive

Less than half of states emphasized cultural diversity in their RTI/MTSS implementation ($n = 22$). Kentucky, for example, included culturally responsive policies as a key feature of its KyMTSS model (Kentucky Department of Education, 2022). In Massachusetts, cultural responsiveness was addressed in its foundational focus on equitable access (Massachusetts Department of Elementary and Secondary Education, 2022). No specific information can be found in the other states.

Leadership Engagement

Leadership was emphasized in most states (n = 37). For example, Michigan listed team-based leadership as an essential component of the MiMTSS. Team-based leadership was defined as "An active, organized, knowledgeable and representative group that exists to provide the whole child supports, remove barriers, coordinate, and evaluate activities for the district in alignment with the broader education system." (Michigan Department of Education, 2020).

Discussion

The national effort to introduce the RTI/MTSS model to each state and implement it at schools has evolved over time. The tiered support system has shown its strength in enhancing the general quality of education services for all students (Sugai & Horner, 2020). It is crucial to have up-to-date data on how states implement the model to guide SEA . Building off of Berkeley et al.'s 2009 and 2020 studies, the present will extend the research in this field by providing the most current and compressive analysis of crucial and detailed elements in the RTI/MTSS model and its implementation.

A Systematic Transition from RTI to MTSS

Historically, Multi-tiered approaches have been described individually in academic (RTI) and behavioral fields (Positive Behavioral Interventions and Supports [PBIS] (Berkeley et al., 2009). The reauthorization of the Elementary and Secondary Education Act marked the formal transition from using different terminologies of different support systems to adopting one umbrella term of MTSS to refer to the integrated multi-tiered system for academic, behavioral, social-emotional, and other aspects of students' development. Results from Berkeley and colleagues' study in 2020 showed that, in choosing a name for the tiered support system, 21 states used MTSS, 17 states named the system RTI, five states utilized RTI and MTSS interchangeably, and four states used their own unique names. Compared with the present research, fewer states use the RTI term, and 19 states switched to MTSS for their tiered support system. This terminology transition confirmed that states are shifting away from only providing tiered support in the academic (RTI) to incorporating more systems in building a comprehensive support system encompassing academic, behavioral, social-emotional, and other aspects of students' development.

Focused Areas

In their publication in 2020, Berkeley and colleagues revealed that the tiered system's main emphasis was academics and behavior. As a major development, we witnessed many states embed social-emotional support for students through the tiered support system ($n = 32$). This finding is encouraging since incorporating social-emotional support addresses the full range of students' development (Lane, 2007). Further, research has confirmed that students' academic performance improves when social-emotional support is implemented with fidelity within the MTSS system (The School-wide Integrated Framework for Transformation Education Center, 2020). We suggest SEAs emphasize the development and implementation of social-emotional interventions at school.

RTI Approaches

There is a long-standing debate about which approach is better—PS or SP. The PS approach involves a problem-solving team in evaluating students' performance, identifying learning needs, and choosing the most appropriate intervention from available resources. The flexibility of the PS approach is a strength since the intervention selection is based on the evaluation of individual students' performance and needs. However, this flexibility is also a vulnerability since the evaluation procedures and criteria are variable and often not well indicated (Fuchs & Fuchs, 2006). On the other hand, the SP approach adopts a single intervention to address students' learning needs. Where the procedure and criteria are well specified, and the implementation fidelity is easier to maintain, the SP approach requires a higher level of staff training and ongoing expert support to make sure the interventionist correctly addresses students' different learning needs by appropriately using the validated intervention (The IRIS Center, 2022).

Results showed more than half of states adopted the PS model. Reasons for the selection of this option include (a) an educational focus on meeting student's individual learning needs, (b) an increase in the number of validated Evidence-Based Practices (EBPs) in recent years that provide a wider selection of interventions that are easier to access (e.g., cost less, multi-platform delivery), and (c) the adoption of a team-based school operation as opposed to only one or two key personnel responsible for the MTSS implementation. We believe SP and PS approaches are both effective in supporting students' development. Schools should conduct a comprehensive self-evaluation to understand available resources, the level of training and expertise of faculty and staff, and any facilitators and barriers in the school system before choosing an approach.

SLD Identification Methods

The Individuals With Disabilities Education Improvement Act (2004) provided detailed guidance on the criteria for determining if a student has an SLD:

(a) Must not require the use of a severe discrepancy between intellectual ability and achievement for determining whether a child has a specific learning disability, as defined in §300.8(c)(10);

(b) Must permit the use of a process based on the child's response to scientific, research-based intervention; and

(c) May permit the use of other alternative research-based procedures for determining whether a child has a specific learning disability, as defined in §300.8(c)(10).

Our research data revealed that while 21 states excluded using the IQ-achievement discrepancy model for SLD determination, more than half of the states ($n = 27$) still permitted LEA to use RTI, other alternative methods, and the IQ-achievement discrepancy model. One explanation for allowing LEAs to use the IQ-discrepancy model was documented in the Nebraska DOE guidance for determining special education eligibility for specific learning disabilities: "Many schools maintain use of discrepancy criteria for instances where data and application of an MTSS system are not in place and implemented with fidelity" (Nebraska Department of Education, 2021). Notably, this statement reflected one crucial real-life issue that should not be ignored. Less-resourced schools, especially in rural areas, tended to have more issues implementing the RTI/MTSS model due to limited funding, training, staffing, and other resources (Barton et al., 2020). Another possible reason why the IQ-discrepancy model was still prevalent in SLD

identification was the lack of understanding of how to operate the psychometric integrity of treatment-based diagnoses in the tiered system and the uncertainty as to how to satisfy related regulations (Berkeley et al., 2020; Hale et al., 2010; Zirkel, 2017).

RTI/MTSS and Special Education, ELL, Gifted Education

Currently, the tiered support system is experiencing an evolutionary change in integrating all the aspects of child development support into a unified system (Castillo et al., 2022; McIntosh & Goodman, 2016). Our data also demonstrated this trend by showing more states integrate their RTI/MTSS system into a comprehensive model which provides educational services to all students, including students with disabilities ($n = 39$), English Language Learners ($n = 30$), and gifted learners ($n = 25$). For example, Kansas stated in its MTSS structure guide that:

> It (the process of creating Kansas MTSS model) is a thoughtful and intentional redesign of educational practices and support provided by general education and entitlement programs, such as Title I, ESOL and special education, to ensure that the individual needs of all students are being met most effectively and efficiently possible. (Kansas Department of Education, 2021)

Curriculum or Program Used for Each Tier

Most states give authority to LEAs to select their curriculum or intervention through an approved or suggested curriculum or intervention list. For example, Mississippi created its approved list of academic interventions (Mississippi Department of Education, 2021) and provided detailed information such as grade level, skill, delivery method, implementation time, and if the curriculum included reports for decision-making, diagnostic, and progress monitoring. In the states that provided suggested curriculum and intervention, two of the most suggested were Academic Intervention Tools from the National Center on Intensive Intervention (National Center on Intensive Intervention, 2021) and curriculum evaluation and selection tools from EdReports (EdReports, 2022). Some states provided other strategies to improve students' academics performance, such as Nine High-yield Instructional Strategies (Marzano et al., 2001) suggested by North Dakota and Tennesee's behavior and social-emotional competence toolkit (Tennessee Department of Education, 2015).

Implementation Support

State leaders focused on improving the implementation of the RTI/MTSS framework. Our result evidenced that much effort was made in supporting leadership engagement, providing professional development to the RTI/MTSS team, involving family engagement to support students, emphasizing the importance of implementation fidelity, addressing cultural diversity and culturally responsive pedagogy in practice, and utilizing the implementation science to upscale the RTI/MTSS implementation. These endeavors reflect the trend to advance the RTI/MTSS framework to provide a full range of support to all the students in a comprehensive and integrated system.

Limitations

The research performed was solely through analysis of data available on the websites of the state DOE. The first limitation of the approach is that some available documents listed on the DOE website seem outdated and may not have presented the most recent guidance. However, due to the resource limitation of this study, we did not interview government RTI/MTSS personnel to check if there was an updated document version. The second limitation was that we could only access 49 states' data, as the Illinois DOE website was not functioning until we completed this research.

Implications

Currently, all the 49 states that we were able to gain DOE website access not only adopted the RTI/MTSS framework but also provided LEAs with implementation support according to the state DOE's priority and resources available. The findings also evidenced states' efforts in advancing the RTI/MTSS framework to address all students' diverse needs in one comprehensive tiered support system. Notably, variations of the model existed in the levels and aspects of support invested in the state RTI/MTSS model. This phenomenon will likely continue in the future as each state focuses on different social, economic, and cultural ecology, which permit a far-reaching influence on decision-making and the implementation of educational innovations. Along the way of more than 20 years of developing the tiered support system, we recognized a great number of public resources available from the website of DOEs, NIRN, and CMTSS, which helped LEAs develop the ground-level of the RTI/MTSS model and implement at school. However, more research is needed to investigate how to best transit (or implement) the model from a theory to school practice and benefit all the students.

As found in the present research, implementation science was adopted in 34% of the states and kept expanding to more states to facilitate the RTI/MTSS model implementation. Two of the most mentioned and highly influential implementation science frameworks were Implementation Stages and Implementation Drivers, introduced by NIRN (NIRN, 2021a, 2022). Future studies might utilize these two implementation science frameworks to answer questions such as (a) what is the best way to deliver the RTI/MTSS training to LEA personnel? (b) how can the system be implemented with appropriate fidelity? (c) how does timely and effective coaching provided for practitioners? (d) how can administrators support the implementation of the model? (e) how could a new data system or an existing performance tracking system best facilitate decision-making? (f) how can leadership guide the smooth operation of the model? (j) what are the resources available to LEAs (e.g., human resources, funding) and the communities (i.e., research institutions, district experts)? and (i) what supports should be prepared at each implementation stage?

In summary, RTI/MTSS is a promising educational framework that has shown strong potential in promoting schools' and students' success under a whole-child approach worldwide. We strongly encourage policymakers, educational leaders, and other stakeholders to utilize this article as a resource to identify examples and effective strategies for building an RTI/MTSS implementation system at the state level. Additionally, we call for further scholarly research to better understand the specific contexts of RTI/MTSS implementation and identify the critical components and moderating variables in the implementation process that can facilitate or hinder its success. By

doing so, we can provide the necessary support to local education agencies and ensure that all students receive a high-quality education that supports their overall well-being.

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