CHAPTER 3

The MTSS

Instructional Prerequisites for Using RTI for Eligibility Decision Making

In Chapters 1 and 2, we established the historical and legal bases for using RTI as part of the evaluation of students being considered for SLD identification. We emphasized the understanding that RTI as an assessment practice must be embedded within an MTSS so that the instruction and intervention provided would be research based and delivered with sufficient fidelity to allow for a valid appraisal of the student's educational needs. In this chapter, we address in detail the components of a well-functioning MTSS. We begin with a description of the instructional hierarchy that undergirds effective instruction and intervention, and then articulate the key features of the three-tier model that has become the standard of MTSS implementation. We end with reflections on the administrative leadership and parental involvement needed to fully realize the MTSS concept.

One of the most important and inspiring findings in research on LD is that with surveillance and early effective intervention, SLD is a mostly preventable diagnosis (Fletcher & Miciak, 2019). Despite this encouraging finding, it remains a pernicious reality that too many children in the United States fail to attain minimal academic proficiencies (*www.nationsreportcard.gov*; National Center for Education Statistics [NCES], 2019). The need to assess and adjust instruction is based on the notion that effective instruction of basic skills cannot be assumed, but rather must be facilitated and supported for all learners. Every child has a right to effective core instruction in the general education program (Barrett et al., 1991). The basic ingredients include a system of assessment that demonstrates that most children are thriving and attaining expected learning outcomes at the appropriate milestone occasions and the full implementation of curricula that are aligned to state and local standards. The accuracy of MTSS and RTI decisions depends on the full implementation of effective core instruction, and yet, many systems require help to deliver this important ingredient to students. In this chapter, we detail the instructional prerequisites that apply to each tier of a fully functioning MTSS that ensures that all students are effectively taught. We then describe how these instructional fundamentals play out in an updated MTSS, which provides the structure that ultimately permits valid decision making about SLD identification.

THE INSTRUCTIONAL HIERARCHY: THE BASIS FOR ALIGNING STUDENT NEED WITH INSTRUCTION

Central to the idea of MTSS is the idea of intensifying instruction incrementally within and throughout the tiers. One of the ways to intensify instruction is to increase the alignment between the instructional tactic and content with measured student learning needs. The instructional hierarchy is the scientific framework for aligning a student's measured skill proficiency with specific instructional tactics. The instructional hierarchy is therefore an important underpinning of MTSS/RTI, as it is the key to selecting instructional tactics at all tiers and is the primary method of intensification in Tiers 2 and 3.

In describing the instructional hierarchy, Haring and Eaton (1978) asserted that skill mastery progresses through four predictable stages of learning, including:

1. Acquisition
2. Fluency
3. Generalization
4. Adaptation

These stages are depicted in Figure 3.1.

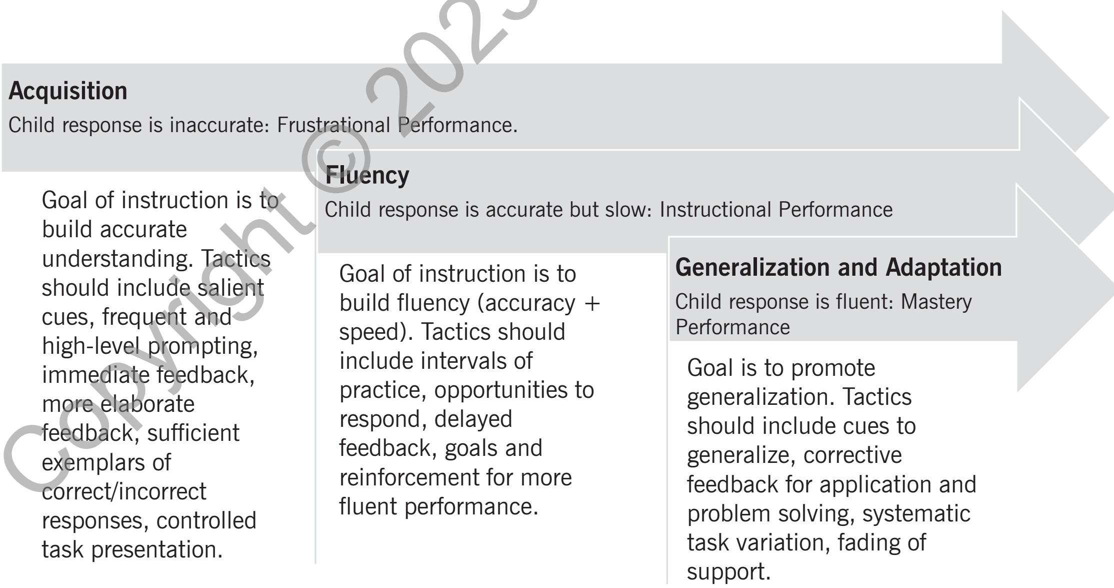

FIGURE 3.1. The stages of learning, child performance characteristics, and aligned instructional tactics. *Note:* We combine adaptation with generalization as a single stage of learning because in the original text "generalization" was used to indicate stimulus generalization and "adaptation" was used to indicate response generalization. (Edited for typographical errors with permission.)

Different instructional strategies are needed for different stages of learning (Burns, Riley-Tillman, & VanDerHeyden, 2012). Gickling and Armstrong (1978) originally demonstrated that misalignment of strategy with student need caused off-task student behavior. More recently, Burns, Codding, Boice, and Lukito (2010) evaluated intervention effects in tandem with starting skill proficiency and termed the effect “skill-by-treatment” interaction, whereby learning accelerated when instruction was aligned with student proficiency and learning decelerated when instruction was not aligned with student learning. This science of instruction is an important underpinning to the “how” of building an individual intervention, but is also useful to the teacher in organizing and delivering core instruction.

Acquisition Instruction

At the acquisition stage, the skill has not yet been established. The goal of acquisition instruction is to establish correct responding toward conceptual understanding (Harniss, Stein, & Carnine, 2002). Conceptual understanding is apparent when the child can demonstrate an understanding of the conditions under which the response is correct and incorrect (behavior analysts call this “discrimination”). Conceptual understanding can be demonstrated in a variety of ways. For example, the teacher can ask the child to draw a picture showing how he or she got an answer, to think aloud when solving a problem, to answer a series of true/false problems, and to change an incorrect answer to a correct one and explain how the change made the answer correct. These approaches provide a window for teachers into the understandings of students so that a teacher can know that a student did not obtain the correct answer by chance or memory alone. Memorized responses are important and can facilitate learning, but only so long as the student understands the conceptual basis for the response. For example, if the student does not understand how to read a sentence for meaning, use decoding strategies, and finally use context clues to read an unknown word, then simply memorizing the sight word will likely fail because all memorized responses are prone to be forgotten. When a memorized response is forgotten, the student must be able to use strategies to obtain the correct response. During acquisition, the teacher should monitor response accuracy on brief tasks attempted without teacher assistance and assess conceptual understanding directly before moving to fluency-building instruction. Once the student is accurate for 90% of responses or better without teacher assistance and can demonstrate conceptual understanding, the student is ready for fluency-building instruction on the particular task (Burns, 2004).

Fluency-Building Instruction

At the fluency-building stage of learning, the skill has already been established. In other words, the student understands how to respond correctly or obtain the correct answer. The goal of fluency-building instruction is to increase the ease with which a student can respond correctly. During acquisition instruction, accuracy of responding is usually monitored by measuring the percentage of correct responses. Before moving into fluency-building instruction, the student’s performance is near a ceiling on what percent correct can convey—that is, once a student’s performance reaches 100% correct responding, there is nothing more that can be learned from percent correct responding to indicate improved learning. Yet, there are important differences in the proficiency of a student who can respond correctly on 100% of problems but whose performance is labored and hesitant compared to the student who can respond 100% correctly but whose performance is automatic. Once a student enters the fluency-building stage of instruction, there must be a timed dimension to performance measurement to detect further gains in proficiency. This can be accomplished using any score reflecting responses correct per minute, which can be obtained from 1-minute timed tests or longer tests that are timed and then divided by the number of minutes to obtain a per-minute estimate of performance (Johnson & Street, 2013).

Instruction for Generalization and Adaptation

Once a student's performance speeds up without any losses to accuracy, usually reflected by high rates of responses correct per minute, the student is ready for generalization and adaptation instruction. In some cases, a student can readily use a learned skill in situations that differ from the training situation. For example, a student who has learned to add two vertical numbers may respond correctly and easily to the same problem when it is arranged horizontally or within a word problem. Sometimes, students (especially those with SLD) may require support to use a learned skill in different contexts or under different task arrangements. During generalization instruction, the teacher should closely attend to the accuracy of student responding and verify that errors do not reappear. Generalization instruction usually involves slight modifications of the task (generally moving toward greater complexity) to allow the child to use the skill under more complex conditions or modify the learned response to solve novel problems. Adaptation instruction involves presenting the child with opportunities to modify a learned skill to solve a problem in a novel way. For example, a child who has learned how to solve addition and subtraction fact problems can be presented with fact problems for which an addend is missing and the child can adapt his or her understanding of addition and subtraction to solve for the missing number. It should be noted that generalization and adaptation were treated as discrete stages in Haring and Eaton's (1978) original description of the instructional hierarchy. However, both are actually forms of generalization with Haring and Eaton's "generalization" meaning stimulus generalization and "adaptation" meaning response generalization. For simplicity, we refer to those two stages as a single stage under the term "generalization" in the rest of the text.

Definition of Individualized Instruction

Customizing instruction to students' needs can produce stronger learning gains than a generic or standard approach. Efforts to customize instruction have been referred to as differentiating, personalizing, and individualizing instruction. Implementers need to understand the key differences between them and how they fit into MTSS. One can think of these approaches as occurring on a continuum from least to most customized, as shown in Figure 3.2.

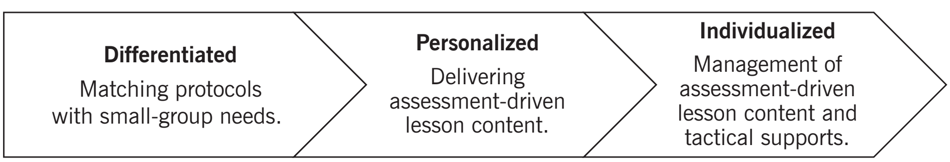

FIGURE 3.2. Continuum of individualized instruction.

Differentiated Instruction

Differentiated instruction allows for a single teacher to address slightly different needs within a single instructional grouping of students. To accomplish differentiated instruction, the teacher makes a judgment to categorize children into two or more categories of performance and then provides slightly different instructional activities and opportunities to each group of students. Differentiation is commonly planned during the course of core instruction to provide additional opportunities to respond and master skills for lower-performing students organized into daily small-group sessions. Differentiation may also be planned to occur during the course of small-group supplemental intervention. Differentiated instruction is generally a low-level effort to provide slightly more customized learning support to students. It is not likely to be a perfect fit for a child's specific individual needs and is not adjusted frequently enough to dovetail perfectly with a child's rate of learning and evolving learning needs. Evidence-based core instruction is the use of tactics that have been shown to work. Differentiation is the application of an evidence-based intervention to specific needs based on informal or formal measurement of students' proficiencies on the learning targets. Differentiation can easily be planned for during core instruction by using informal assessment to determine whether students have mastered targeted skills and content, and therefore are ready for more challenging lesson content versus students who have not yet acquired the desired understanding and need acquisition-level instruction versus students who simply need additional practice.

Evidence suggests that differentiation is a logical and important ingredient of core instruction, but by itself will not be sufficient for MTSS. In an especially well-conducted, large-scale experimental investigation of teacher use of formative assessment data (Measures of Academic Progress [MAP] in this study) to differentiate instruction, Cordray, Pion, Brandt, Molefe, and Toby (2012) found that although teachers correctly used the formative assessment, these teachers were no more likely than control group teachers to apply differentiated instructional practices in their classes. As a result, there was no statistically significant impact on student reading achievement. This finding is not surprising and is consistent with the research showing that acting on collected data is the sine qua non of MTSS efficacy and the greatest validity threat to the RTI decision.

As a routine for core instruction, effective teachers plan for initial skill acquisition, opportunities for guided practice and feedback, checking for understanding, fluency-building practice, and an opportunity to apply learned skills each day. When teachers introduce new content, they can generally assume that most students in the class will function at the acquisition stage of learning. Once a lesson has been taught, the teacher can verify student understanding, and then assume that most children are ready for fluency-building strategies. Most children will respond over time when this type of instruction is offered, even when it is not perfectly aligned with each student's skill proficiency at each moment in time. For some children, however, the instruction will not be a good match with their proficiencies and they will fall into the risk category at screening. Classwide or small-group supplemental intervention can be very effective in rapidly improving the skills of students so that the core instruction is functionally a better match with these students' proficiencies. Students who do not experience success with classwide or small-group intervention require individualized assessment to plan an intensive individualized intervention. Figure 3.3 shows how the teacher can use assessment data collected during the course of instruction to differentiate or supplement core instruction dynamically. Children ready for generalization can be provided with challenge problems and application problems. Children in the fluency-building group could receive intervals of practice with goals and rewards for improved performance. Chil-

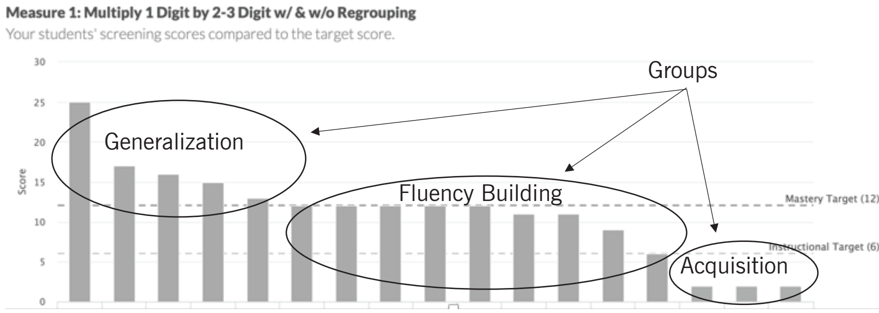

FIGURE 3.3. An illustration of how teachers might use student data to organize students into small groups during core instruction. From SpringMath (*www.springmath.org*).

dren in the acquisition group could receive a teacher-directed small-group lesson emphasizing explicit instruction tactics to establish accurate responding.

Personalized Learning

Personalization is a more customized approach to learning, but generally in most educational systems, it is conducted without the close involvement of the teacher. Personalized learning means that the content delivered is aligned with some sensitive measurement of the student's learning needs. Personalized learning involves session-by-session assessment and lesson adjustment, which is cumbersome and therefore is most often delivered online. At the surface level, personalized learning sounds very appealing because it theoretically reduces the response effort involved in managing different instruction for different students. However, experimental evaluations of Web-based intervention programs are often underwhelming (Wang & Woodworth, 2011) and available research suggests that implementation integrity remains a problem, even with the use of these tools (Center for Education Policy Research, 2016).

Individualized Instruction

Individualization is an even more customized type of intervention. Like personalization, individualization involves session-by-session assessment and adjustment of the lesson, but unlike personalization, individualization also includes ongoing management of the student's engagement with the lesson content and the emergence of any undesired effects (e.g., loss of motivation). Thus, true individualized instruction cannot be assigned to a Web-based intervention and instead must be implemented and closely monitored by a teacher. Individualization of intervention is a key feature of Tiers 2 and 3 in MTSS. As a result, the National Center on Intensive Intervention (NCII; *www.intensiveintervention.org*) provides a number of resources to facilitate data-based individualization of student instruction, which is necessary for Tier 2 and 3 interventions.

Operationalizing Intensification

In MTSS, intensification of instruction was originally operationalized in three ways: (1) intervention session duration, (2) intervention delivery format (small group vs. individual), and (3) frequency of progress monitoring. These early efforts to operationalize intensity were mostly conceptual and were grounded in the logic that the more costly approach would also be the more intensive approach, which also seemed to be supported by early RTI research. A seminal study of RTI in reading (Vaughn, Linan-Thompson, & Hickman, 2003) used a standard intervention exit criterion and found that higher numbers of students met the exit criterion with more weeks of intervention and that specifically 76% of their sample met the exit criterion after 30 weeks of intervention. They also found the largest intervention effect for the group that exited after 30 weeks of intervention (as compared to 10 weeks and 20 weeks). Although these researchers noted caution in their findings that the larger effect with longer intervention was confounded by that group demonstrating weaker initial skill, duration of time became a concrete way to operationalize intensity, and thus became a cornerstone of most intensification models.

Subsequent research, however, has found that intervention intensification is more complex than simply increasing minutes of intervention, using a one-adult-to-one-student format, and monitoring progress more frequently. For example, in one study, holding the number of instructional minutes constant but distributing instructional minutes in more frequent, shorter-duration sessions produced stronger learning gains (Codding et al., 2016). This study randomly assigned students to small-group mathematics intervention that was delivered once weekly for 40 minutes, twice weekly for 20 minutes per session, four times per week in 10-minute sessions, or progress monitoring only (control). Groups were equivalent at baseline, performance-deficit cases were ruled out and excluded from intervention, and the intervention content was aligned with student proficiency. Importantly, every component of the intervention (including measured student engagement) was controlled such that in a given week, all children received the same number of opportunities to respond with feedback, with the only difference being whether the intervention was delivered in a single 40-minute dose, in two 20-minute doses, or four 10-minute doses. Results showed that the four times per week 10-minute sessions produced the strongest gains on CBM, whereas the 40-minute once per week session was no different from the control condition in terms of student growth. Thus, total number of minutes allocated to intervention was not a factor that impacted growth (i.e., total minutes was the same across the three experimental sessions and the once-weekly session did not differ from the control condition). Instead, it was the timing of intervention sessions during the week, with four-times-per-week sessions producing the greatest growth. Other studies have demonstrated similar findings with shorter-duration, more frequent instruction sessions being associated with stronger learning gains (Schutte et al., 2015).

Dosage can also be considered as the density of active ingredients in the intervention tactic. For example, Duhon, House, Hastings, Poncy, and Solomon (2014) demonstrated that adding immediate corrective feedback to an explicit timing intervention for mathematics fluency improved outcomes. Alternatively, single tactics can be intensified by increasing their density within the intervention session. For example, more intensive fluency-building interventions increase the number of opportunities to respond embedded into the session. More intensive acquisition interventions may increase the density of corrective feedback provided in the session or break a complex task into subskills that can be taught using explicit instruction. In fact, these variables feature prominently in instructional intensification models provided by NCII (*https://intensiveintervention.org/sites/default/files/DBI_ImplemenRubric_2015.pdf*).

Delivering intervention in small groups was originally hypothesized to be less intensive than delivering individual intervention, presumably because individual intervention could allow for greater customization of the learning experience and more frequent and specific feedback for the participating student relative to small-group intervention. Empirically, however, this assumption has not held. For example, Clarke et al. (2017) randomly assigned students to receive an evidence-based math intervention (ROOTS) in groupings of two students to one adult versus groupings of five students to one adult. They demonstrated that students received more peer feedback in the 5:1 condition and more individual feedback in the 2:1 condition, but treatment effects did not differ between the groups. In a follow-up study testing the same hypothesis in a similar way, Doabler and colleagues (2018) replicated this finding and concluded that lower student-to-teacher ratios in Tier 2 interventions were not associated with stronger intervention effects.

The idea that more frequent progress monitoring would be an important marker of instructional intensity also has not come to fruition. It was an idea that depended upon decision makers acting on the collected data to make more frequent adjustments to intervention, which theoretically would have caused interventions to be more agile, more fine-tuned, and more individualized. The power of formative assessment data to guide instruction was convincingly demonstrated in a line of research conducted by Fuchs and colleagues in the 1980s (e.g., Fuchs, Fuchs, & Hamlett, 1989; Fuchs, Fuchs, & Stecker, 1989). A subtlety recognized by these researchers was that the active ingredient was not the formative assessment data collection on its own but rather interpreting and acting upon the formative assessment data (Fuchs, Fuchs, Hamlett, & Stecker, 1991). Thus, frequency of progress monitoring by itself is not empirically associated with intensity of instruction—but consultation support to interpret and act upon formative assessment data was associated with year-end improvements in student achievement (Fuchs et al., 1991).

Thus, the more individualized the instruction, the greater the intensity of the instruction—however, designing and delivering individualized instruction is highly challenging for most systems. Despite early optimism that professional development supports could be used to ensure more dynamic in-class decision making to fine-tune instruction based on student learning, research has shown that even intensive professional development does not bring about desired results in student learning. Specifically, a series of experimental studies sponsored by the Institute for Education Sciences (IES) used randomized designs to demonstrate that intensive professional development (including 68–110 hours of summer training, meetings during the school year, and in-class coaching) generally did not cause teachers to make the types of formative instructional adjustments needed to bring about improved learning. Even though the training did improve the content knowledge of teachers in reading and mathematics, student achievement outcomes did not differ between the treatment and control groups (Garet et al., 2008, 2010, 2016). These data indicate that planning and delivering the needed instructional adjustments for intensified instruction requires a different package of teacher support.

Empirically driven intensification narrows the skill target (narrower is more intensive). Using proximal measures and more narrowly defining and measuring intervention targets allows for more frequent adjustments of learning targets through more dynamic decision making. Intervention tactics are intensified by increasing the dosage of learning trials or opportunities to respond, corrective feedback, and other features of explicit instruction and more precise alignment of the instructional tactic with student learning via the instructional hierarchy. Enabling antecedent conditions include ensuring that the host environment for the intervention is sufficient (Witt, VanDerHeyden, & Gilbertson, 2004) and that teachers have been well equipped to use the intervention. Tracking of intervention use and success occurs weekly with in-class coaching to support more effective implementation. Specifically, direct investments to improve implementation that do work include monitoring use of a recommended tactic via permanent products, identifying cases with weak implementation, and providing in-class coaching support to improve implementation (Witt, Noell, LaFleur, & Mortenson, 1997). These tactics for intensification are summarized in Figure 3.4.

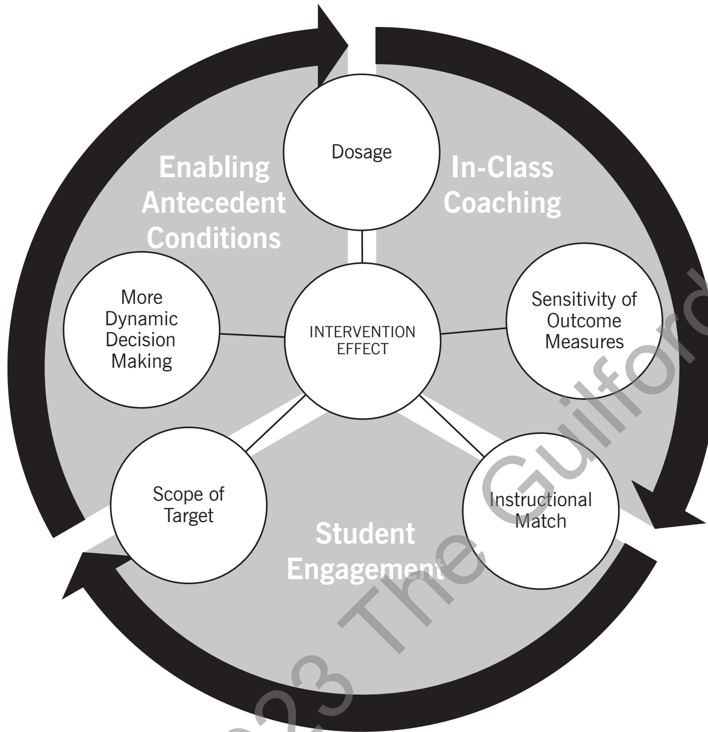

FIGURE 3.4. Variables related to intervention effect and therefore useful in intensifying instruction.

AN UPDATED THREE-TIERED MODEL

Fifteen years have passed since the National Association of State Directors of Special Education (Batsche et al., 2005) described a three-tiered model of intervention services, progress monitoring, and data-based decision making that we now refer to as MTSS. In Figure 3.5, we provide an updated view of the three-tiered model and highlight the important features of each tier.

The use of a triangle to explain MTSS is based on the idea that, as one moves through the tiers, the number of students in each tier decreases while intensity of instruction increases. The focus for teams at Tier 1 is the performance of all students and discussion of instructional strategies aimed at bringing all students to proficiency in basic skills, with the expectation that at least 80% of students experience success at Tier 1 (Batsche et al., 2005). Universal screening and benchmark assessments are conducted with all students to assess overall program efficacy (i.e., program health), gauge the overall performance of students at a particular grade level, and identify those students who need intensified instruction in Tiers 2 and 3. Because identifying students needing Tier 2 or 3 intervention is especially error prone in the context of low-performing classes, classwide intervention has emerged as an important feature of MTSS. We situate classwide intervention as

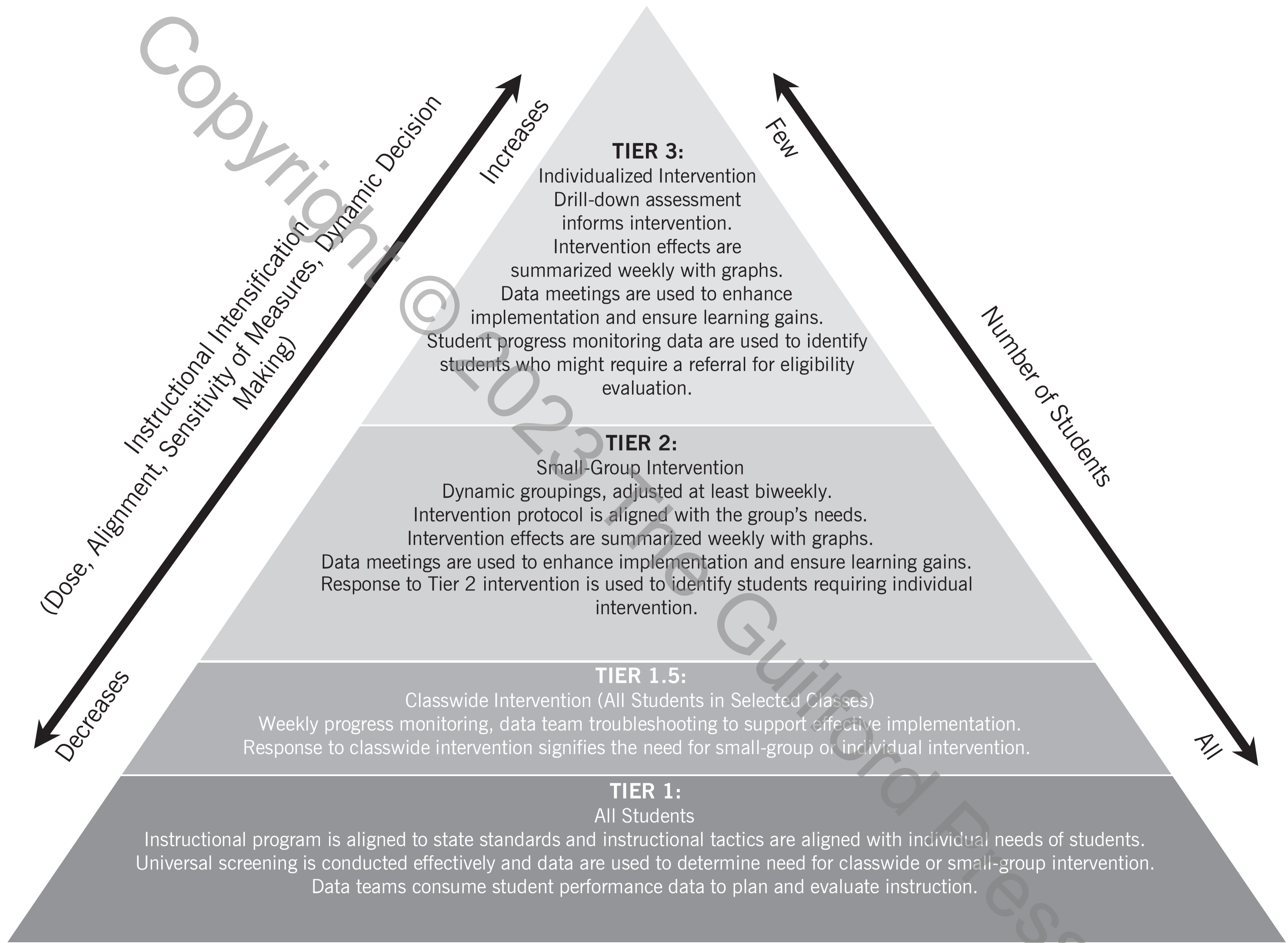

FIGURE 3.5. Updated model of MTSS.

Tier 1.5. Classwide intervention is universal because it includes all students in a class in which there is a classwide learning problem, supplements core instruction, and functions as a second gate in universal screening to allow for more accurate identification of students needing Tier 2 or 3 intervention. The theoretical and empirical basis for classwide intervention as a screening gate is detailed in VanDerHeyden (2013) and is also described in Chapter 4 of this book.

Tier 1

As indicated in Table 3.1, an effective Tier 1 should include the following features: standards-aligned core curricula; scientific instructional practices; instruction that is aligned with student learning needs; universal screening of basic academic skills; and grade-level teaming to analyze data, set system targets for improvement, adjust core instruction, and make screening decisions.

Rigorous Core Curricula

Rigorous core curricula are aligned with state standards. Teachers must have a clear understanding of what the essential learning outcomes are by grade level and a clear set of learning standards is the best place to start. The most comprehensive set of learning outcomes by grade level are the Common Core State Standards (*www.corestandards.org*; National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010). These standards define the knowledge and skills students should have within their K–12 education careers so that they will graduate high school with the ability to succeed in entry-level, credit-bearing academic college courses and in workforce training programs. Most state standards are similar or identical to the Common Core Standards, although some state standards are better specified than others. Standards must be clearly written so that they do not function as a barrier to knowing what to teach and deciding whether a curriculum is aligned or not. If state standards are not clear, the Common Core Standards offer a nice backup. Tier 1 curricular-review sites, such as Edreports.org, evaluate curricula based on their alignment with the Common Core Standards. In addition, a rubric for evaluating reading/language arts materials in the primary grades is available from the IES (Foorman, Smith, & Kosanovich, 2017).

In addition to their alignment with appropriate state or national standards, adequate core curricula should provide clearly coordinated instructional sequences. In this way, teachers can understand what mastery of each standard looks like so they can pace their instruction to verify prerequisite skill mastery, provide explicit teaching of new understandings, and provide sufficient practice opportunities to ensure mastery of taught skills. If the teacher does not have an instructional calendar that paces activities out in coordinated learning sequences, then that is an obvious target to improve the efficacy of core instruction. Teachers must provide a range of instructional opportunities each day to accommodate students who require acquisition, fluency building, or generalization support. Finally, when core instruction is working well, the vast majority of students will experience success and perform outside of the risk range on screenings and year-end tests. Table 3.2 displays indictors that signal whether these features are in place.

When most children are not attaining benchmarks that forecast long-term successful learning in their school system, the first order of business for MTSS is to set about upgrading core instruction. It is incorrect to say that MTSS cannot be implemented until at least 80% of students are meeting benchmark expectations (typically operationalized as performing above the risk cri-

TABLE 3.1. Essential Components of MTSS

Tier 1

- Instructional program is aligned to state standards.
- Instructional tactics are aligned with individual needs of students.
- Universal screening is conducted effectively.
- Data teams consume student performance data to plan and evaluate instruction.

Tier 1.5

- Classwide interventions are used if 50% or more of core class grouping performs in the risk range at screening.
- Response to classwide intervention is used to signify the need for intervention intensification if these data are available.

Tier 2

- Time is allocated on the master calendar for Tier 2 instruction.
- Intervention may be provided in small groups. Students with similar skill deficits should be grouped together for intervention and the intervention protocol should be aligned with the group's needs.
- Standard protocol interventions are used.
- Intensity is greater than what is provided at Tier 1 (i.e., more explicit instruction, greater opportunities to respond, more frequent corrective feedback).
- Progress is monitored each week for all students.
- Intervention integrity is monitored.
- Intervention effects are summarized with graphs and problem-solving meetings are conducted to enhance implementation and ensure learning gains.
- Groupings are dynamic, allowing students to change groups as their learning needs change through the intervention.
- Student progress monitoring data are used to identify students requiring individual intervention.

Tier 3

- Assessment is conducted with the individual student to identify an intervention that can be expected to improve performance if correctly used.
- Interventions are more intensive than what is possible at Tier 2 (i.e., instruction may have to drop back several levels to establish missing skills, individualized corrective feedback is necessary to establish and maintain correct student responding).
- Progress is monitored each week and the school examines the percentage of students served at Tier 3 who remain in the risk group at subsequent screenings.
- Intervention effects are summarized with graphs and problem-solving meetings are conducted to enhance implementation and ensure learning gains.
- Student progress monitoring data are used to identify students who might require a referral for eligibility evaluation.

terion on screening). Rather, the measurement process that is embedded into MTSS can be used to identify targets for improvement, to evaluate the effect of changes made to core instruction that are intended to improve outcomes, and to adjust the ongoing core improvement effort until 80% or more of students are thriving in core instruction. As the school builds a plan to improve the effects of core instruction, it is useful to categorize tactics as those that are likely to be high yield versus those that are relatively low yield. Whereas low-yield tactics might be included in the plan for improvement, the team should be aware that such efforts will not be sufficient. Low-

TABLE 3.2. Key Factors Related to Standards-Aligned Curricula and Evidence That Factors Are in Place

Curriculum factor	Evidence
Curriculum is aligned with state standards.	• There is substantial overlap between skills and content taught in each subject and the specific items described in the state content standards at each grade level.
Curriculum provides coordinated instructional sequences.	• There is a logical flow from basic to more advanced skills in a sequence that corresponds to research literature (e.g., sequence of letter sounds to be taught; sequence of math computational skills to be presented). • An instructional calendar specifies time points by which certain skills ought to be mastered by all students. • Student assessment data are available to know whether most students are meeting benchmarks.
Curriculum facilitates explicit teaching.	• Explicit teaching techniques that address the skills and content for that subject and grade are described in the curriculum materials. • Teaching techniques include specific procedures for teacher instruction, including teaching scripts and routines. • Skills are defined in ways that specify mastery and nonmastery. • Skills to be taught are not merely embedded in more generic teaching guides, but are explicitly stated and connected to particular lessons designed to establish those skills for students.
Grouping practices maximize student engaged time.	• Strategies for creating flexible instructional groups during core instruction that match instruction to student skills are described. • Clear focus is given to instructing students at their instructional levels.
Instruction moves from initial scaffolding to transfer and generalization.	• The curriculum includes ample strategies for providing instructional supports (scaffolding) during skill acquisition, as well as specific strategies for application of skills in real-life contexts that allow for generalization and transfer of learning. • Adequate instructional time is provided for fluency building to ensure students reach mastery for essential skills. • Strategies are provided to promote retention of learned skills. • Strategies are provided to support students who do not master skills at expected time points.
Implementation with high integrity leads to positive outcomes for students.	• Procedures for assessing the integrity of curriculum delivery are part of the curriculum and are used on a regular basis (e.g., peer coaching, administrative observation). • There is evidence that the core curriculum produces proficiency for at least 80% of students.

yield improvement efforts include tactics like providing a program of professional development, organizing teams into professional learning communities, replacing the core curriculum, installing supplemental tools via computer labs, and establishing enrichment periods.

Some very low-achieving systems are told that they must improve their core instruction, but then are not successful in doing so, which can result in overwhelmed intervention services and a failure to detect students who may need special education. In the face of this pressure, schools may adopt local normative reference criteria to deliver Tier 2 and 3 interventions to some subset of students. The size of the subset is typically driven by available resources and often includes the lowest-performing 10–25% of students. As is shown in Chapter 4, the problem with this approach is that the basis for identifying the lowest-performing students is terribly error prone when many children are low performing. For this reason, we argue instead for the installation of classwide intervention, the how-to's of which are detailed in later chapters.

Evidence-Based Instruction

If the curriculum is the "what" to teach, instruction is the "how" to teach. Instruction consists of the planned actions that teachers use to facilitate learning. Over the past 30 years, there has been a gradual shift from using intuitive or theoretical approaches to classroom teaching to the identification of instructional strategies based on empirical research. Nonetheless, novel philosophy-based approaches to educating children are ever emerging and often installed before demonstrating a track record of efficacy with children (Ellis, 2001). Fads (e.g., discovery, problem-based, and inquiry-based teaching; flipped classrooms; whole language and the three-cuing strategy) are quick to arrive and slow to remove, even when they are shown to be ineffective (Kirschner, Sweller, & Clark, 2006). The implementation of unproven tactics is not benign—rather, these tactics deplete resources in personnel and dollars that could be purposed to instructional tactics that have been shown to work in research and practice.

In contrast, we advocate for a more rigorous and evidence-based approach to the discipline of teaching. The University of Oregon's Center on Teaching and Learning (Thomas Beck, 2006) identified nine general features of instruction, including:

- Instructor models instructional tasks when appropriate.
- Instructor provides explicit instruction.
- Instructor engages students in meaningful interactions with language.
- Instructor provides multiple opportunities for students to practice.
- Instructor provides corrective feedback after initial student responses.
- Instructor encourages student effort.
- Students are engaged in the lesson during teacher-led instruction.
- Students are engaged in the lesson during independent work.
- Students are successfully completing activities to high criterion levels of performance. (pp. 5–6)

Hattie's (2017) meta-analytic work in education is a powerful demonstration of an important principle in education: The effects of instructional tactics on student learning can be measured and then can serve as a basis for informing more useful and effective instruction in classrooms. The teacher and team decision makers are the key players in selecting and deploying tactics that can work. Hattie's contribution is that central to the stewardship of instructional resources is selecting tactics that can work for students. Table 3.3 summarizes effect sizes[1] associated with educational practices.

Hattie (2017) envisioned schools in which administrators and staff conduct internal appraisals of the effects of their instructional efforts and collaborate to discuss, implement, and evaluate research-supported instructional practices. First, schools should begin with tactics that are evidence based and not just touted by prophets or publishers. Second, schools should use their assessment data for rigorous, ongoing program evaluation conducted in their own settings (Morrison & Harms, 2018).

TABLE 3.3. A Sample of Instructional Variables and Their Effects on Student Achievement

Instructional variable	Effect size	Instructional variable	Effect size
Cognitive task analysis	1.29	Outlining and transforming	0.66
Response to intervention	1.29	Concept mapping	0.64
Jigsaw method	1.20	Behavioral intervention programs	0.62
Conceptual change programs	0.99	Spaced vs. massed practice	0.60
Integrating with prior knowledge	0.93	Metacognitive strategies	0.60
Transfer (generalization) strategies	0.86	Direct instruction	0.60
Classroom discussion	0.82	Appropriately challenging goals	0.59
Scaffolding	0.82	Strategy monitoring	0.58
Deliberate practice	0.79	Mastery learning	0.57
Summarization	0.79	Self-verbalization/self-questioning	0.55
Mnemonics	0.76	Peer tutoring	0.53
Repeated reading programs	0.75	Cooperative vs. competitive learning	0.53
Elaboration and organization	0.75	Teacher–student relationships	0.52
Evaluation and reflection	0.75	Self-regulation strategies	0.52
Reciprocal teaching	0.74	Note taking	0.50
Rehearsal and memorization	0.73	Providing formative evaluation	0.48
Phonics instruction	0.70	Small-group learning	0.47
Feedback	0.70	Study skills	0.46
Acceleration programs	0.68	Discovery-based teaching	0.21
Learning goals vs. no goals	0.68	Aptitude–treatment interactions	0.19
Problem-solving teaching	0.68	Boredom	–0.49

Note. Excerpted from https://www.visiblelearningmetax.com, Visible Learning MetaX™ developed by John Hattie. Reprinted by permission of Corwin Press.

[1] Effect sizes for group designs are typically computed as the difference between mean outcome measure scores for the treatment group and the control group divided by the standard deviation of the control group. Effect sizes are often called "standardized mean differences" since they convey the difference or effect that was obtained with a treatment in standard deviation units. Meta-analyses analyze effect sizes reported across multiple studies.

Universal Screening

Academic screening is now commonplace in most school systems (Silva, Collier-Meek, Codding, Kleinert, & Feinberg, 2021). Universal screening assessments (1) assist teachers in planning instruction, (2) screen for those students who displayed gaps in the acquisition of basic skills so that appropriate intervention can be delivered, and (3) assess the overall level of proficiency for groups of students to evaluate the effectiveness (i.e., health) of the educational program. To meet these goals, screening instruments must (1) be related to important academic attainments, (2) be predictive of future performance, (3) yield reliable scores, and (4) be brief and efficiently administered. Most systems administer universal screening assessments three times per year (fall, winter, spring; Silva et al., 2021). It is important to select a screening measure that assesses a skill that has been taught and on which students are expected to perform well in order to benefit from the instruction that is forthcoming in the scope and sequence at that grade level. There is sometimes a temptation among team members to select a skill that will be easy for the students so student performance will look strong, but this approach leads to inaccurate conclusions. For useful screening decisions to be made, data teams must select measures that assess what students are expected to be able to do, not what we think they can do. This approach allows schools to answer the first step in screening—that is, are most children performing as expected?

Recent research has highlighted the need to bring the following improvements to the efficiency and use of universal screening data. Teams should inventory existing measures to ensure that redundant tools are removed from the assessment lineup. It is an unfortunate reality that, in many schools, students are overassessed, and this overassessment comes at a direct cost to available instructional time potentially causing less learning (VanDerHeyden et al., 2018). Schools can use the sample inventory in Form 3.1 (at the end of the chapter) to list all existing measures currently used in the school. Where redundant measurement systems are being used, decision makers should choose one system and discontinue the other as a matter of efficiency and efficacy. Systems should also avoid the temptation to change screening systems frequently. Often one screening system is not really superior to another and adopting a new system consumes resources that could be devoted to more fruitful data interpretation and intervention actions.

Universal screening can be conducted during a single school day or across multiple days, depending on the size of the school and the available resources to conduct screening. VanDerHeyden and Burns (2010) provided a sample single-day screening schedule (see Figure 3.6). Containing screening activities within a single day minimizes time taken away from instruction and allows the school to provide support for accurate screening administration. Implementation leaders should ensure that standard screening administration directions are provided and followed in the collection of screening data. Support should be provided to ensure the obtained data are reliably scored, and the scores should be entered into a database. Because multiple decisions will be based on the screening data, it is important to ensure that the data are collected with minimal threats to reliability and validity. It is also important to organize the data into a database that is easily accessible to decision makers but also protects student confidentiality. A sample checklist is provided in Form 3.2 (at the end of the chapter) that teams may use to verify and document the quality of screening data prior to using them for decision making. Finally, one of the lessons learned in screening is that screening alone does not convey benefit to students. Screening data have to be interpreted and acted upon with instructional changes for students to experience the intended benefits of

Time	Grade	Teacher Name	Class Location	Coach
7:45–8:45	Grade 1	Teacher A	Room 1-A	Coach 1
		Teacher B	Room 2-A	Coach 2
		Teacher C	Room 3-A	Coach 3
		Teacher D	Room 4-A	Coach 4
9:00–10:00	Grade 3	Teacher I	Room 1-C	Coach 1
		Teacher J	Room 2-C	Coach 2
		Teacher K	Room 3-C	Coach 3
		Teacher L	Room 4-C	Coach 4
10:15–11:15	Grade 2	Teacher E	Room 1-B	Coach 1
		Teacher F	Room 2-B	Coach 2
		Teacher G	Room 3-B	Coach 3
		Teacher H	Room 4-B	Coach 4
11:30–12:30	Grade 5	Teacher Q	Room 1-E	Coach 1
		Teacher R	Room 2-E	Coach 2
		Teacher S	Room 3-E	Coach 3 (Coach 4 organizes data for scoring)
12:30–1:15	Lunch break			
1:15–2:15	Grade 4	Teacher M	Room 1-D	Coach 1
		Teacher N	Room 2-D	Coach 2
		Teacher O	Room 3-D	Coach 3
		Teacher P	Room 4-D	Coach 4
2:15–2:45	Catch up, organize data, and dismissal			

FIGURE 3.6. Sample screening schedule. From VanDerHeyden and Burns (2010, p. 25). Copyright © 2010 John Wiley & Sons, Inc. Reprinted by permission.

screening. Additional and detailed information about the psychometrics of universal screening, along with its uses in assessing the health of the instructional program, are presented in Chapter 4.

Key Data Interpretation Actions

Whereas collection of screening data is now commonplace in schools, data interpretation is greatly lacking (Silva et al., 2021). To enhance data interpretation, we first recommend paring down screening data. When schools make the mistake of collecting too much assessment data, there is a tendency for those schools to fail to consume the data for decision making and instructional action, perhaps because they are so busy collecting the data or are simply overwhelmed by the volume (Silva et al., 2021; VanDerHeyden & Burns, 2018).

Once the data are collected, the team must use the data to identify the problem, set a goal, identify solutions, plan implementation, intervene, monitor student response, and evaluate outcomes (Hyson, Kovaleski, Silberglitt, & Pedersen, 2020). According to recent research, teams do not evenly implement all necessary decision actions. For example, most teams schedule and attend problem-solving meetings (Burns, Peters, & Noell, 2008) and most systems collect screening data and compare screening performance to benchmarks to determine risk (Silva et al., 2021). However, critical ingredients necessary to effective MTSS and RTI are often wholly lacking, including, for example, using progress monitoring data to adjust interventions and collecting fidelity of implementation data for interventions (Burns et al., 2008; Silva et al., 2021).

To operate data teams effectively, time must be allocated for collection and manipulation of the data into teacher-friendly formats, as well as for the meetings themselves (see Hyson et al., 2020). Alarmingly, in a large survey of practicing school psychologists, fewer than half reported that progress monitoring data were always or often graphed (Silva et al., 2021). NCII has developed resources to assist teams to more effectively consume and act upon their data, which is a critical barrier to attaining improved academic outcomes via MTSS. Their resources can be located at *https://intensiveintervention.org/resource/dbi-implementation-rubric-and-interview*.

Teams should use a problem-solving structure to identify group trends in meeting proficiency in basic skills and to plan classwide instructional strategies to increase student outcomes (Hyson et al., 2020). Typically, data teams consist of all teachers in a particular grade in one school, the school principal, and specialists, including one person designated to manage the data. The data include results of state tests and universal screening measures. The basic format of these Tier 1 meetings is to identify the percentages of students at various proficiency levels (e.g., advanced, proficient, basic, below basic) and to identify goals to be accomplished by the next meeting. For example, a typical second-grade fall target would be to increase the percentage of students scoring in the proficient range on a measure of early reading (e.g., oral reading fluency [ORF]) by the next measurement occasion (e.g., winter screening). With that goal in mind, the data team reviews and selects instructional strategies to be implemented by all classroom teachers in that grade. The team also plans the logistics of implementing the strategy, including procedures for ensuring that all teachers are adequately trained and prepared to implement the strategy (e.g., through peer coaching), have the necessary materials to implement the strategy, and for following up to verify that the strategy is being used as planned. Regularly scheduled data team meetings should devote part of the agenda to tracking the effects of classwide intervention gains and informing the delivery of in-class coaching support to teachers whose classes are not experiencing success. Subsequent universal screening data can be used to verify that gains are transferring to less risk among students. The aim of this process is to assist teams of teachers to gradually identify those instructional strategies that are most effective in facilitating the students' skill acquisition, thereby improving overall instructional effectiveness. Importantly, in classes where gains are not made or are not comparable to the gains obtained in other classrooms, a closer look at the classroom instruction should occur to ensure that agreed-upon strategies are correctly used and to troubleshoot implementation so that the students in that class can grow at rates comparable to other classrooms in the same grade. Where individual classrooms require this type of implementation troubleshooting, more frequent data monitoring (e.g., monthly screening) is necessary for decision makers to verify and/or ensure improvements.

The analysis of screening data begins a long process of recursive and ongoing data-based decision making, which can be either a strength or a barrier to MTSS efforts. As shown in Figure 3.7, there is a flow of critical decisions that begin logically with universal screening. As data teams analyze screening data to inform Tier 1 instruction, they can determine whether classwide intervention, which we are identifying as Tier 1.5, is needed to supplement core instruction. If so, weekly classwide intervention data drives the subsequent decision to intensify intervention for

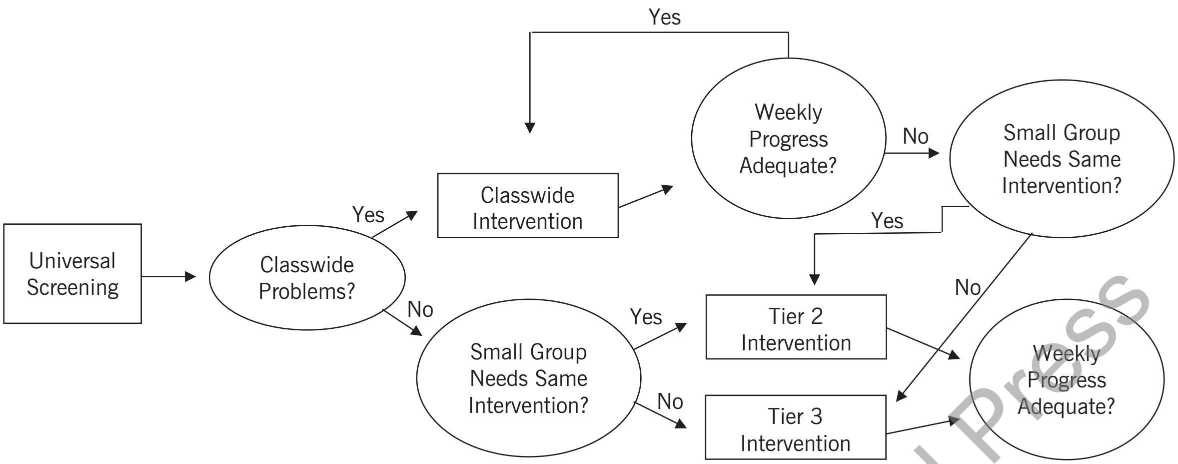

FIGURE 3.7. Flow of decisions in an MTSS.

students who are not experiencing success in classwide intervention in Tier 2. Similarly, weekly progress monitoring data in Tier 2 drive the decision to intensify intervention in Tier 3, as needed.

Tier 1.5: Classwide Intervention

Classwide intervention is a standard-protocol, fluency-building intervention that uses the classwide peer-tutoring format to build fluency in essential academic skills. Interventions include high rates of opportunities to respond, using instructional-level materials (i.e., materials for which students can generally respond accurately), error correction, and goal setting. Students work in pairs, taking turns practicing the skill, and then generally complete a timed interval of performance to try to improve their scores. Materials are increased in difficulty as more students reach mastery. Classwide intervention is very efficient, requiring only about 15 minutes each day, and because it produces rapid gains in student learning, it is a high-yield ingredient of MTSS (Barrett & VanDerHeyden, 2020). Classwide intervention is not a new concept and has been presented as a useful layer of MTSS and RTI (Ardoin, Witt, Connell, & Koenig, 2005; Greenwood, 1991; VanDerHeyden & Burns, 2005; VanDerHeyden, Witt, & Gilbertson, 2007). Recent work has situated classwide intervention into the first layer of MTSS (see Figure 3.5) and replicated moderate to strong effects on academic performance for all students, and reduction of risk overall, causing smaller numbers of children to require Tier 2 or 3 intervention (VanDerHeyden & Burns, 2005; VanDerHeyden, McLaughlin, Algina, & Snyder, 2012; VanDerHeyden et al., 2007). Classwide intervention occupies the space between Tier 1 and Tier 2. Unlike Tier 1, it is supplemental to core instruction (Tier 1 is core instruction). It is universal at the class level, but not all classes in a grade may need classwide intervention. However, if the class as a whole meets the risk criterion, the entire class participates in classwide intervention, and that is the basis for progressing to Tier 2 or 3.

In one of the first evaluations of classwide intervention, Greenwood (1991) identified a low-performing, low-socioeconomic status (SES) group of students in grade 1, an equivalent control group of similarly low-performing and low-SES students, and a comparison group of not-at-risk peers of average- to high-SES backgrounds. These students were followed into grade 3. The experimental group was provided with classwide intervention (i.e., classwide peer tutoring) designed to increase opportunities to respond and student engagement during instruction. The control and comparison groups were provided with business-as-usual instruction. By grade 3, the at-risk group that was provided with classwide intervention performed comparably to the original not-at-risk group and outperformed the equivalent control group in gains on a standardized achievement measure. The group receiving classwide intervention also demonstrated greater engagement during instruction and more instructional time as compared to the control group, which was the hypothesized mechanism of action toward improving achievement.

Fuchs, Fuchs, and Burish (2000) developed and studied the Peer-Assisted Learning Strategies (PALS) method of classwide intervention for reading and math. In a series of experimental studies conducted over two decades, these authors demonstrated moderate to strong effect sizes for students of all ability levels participating in the PALS intervention for reading and math in grades K–6. The PALS method is an efficient mechanism to improve the performance of all learners during the course of core instruction.

Tier 2

Tier 2 interventions are designed to supplement, and not replace, the core classroom program for children who are at risk in classes that are thriving or for children who have not adequately responded to core instruction and classwide intervention. Tier 2 interventions should represent an intensification of instruction over Tier 1. Intensification in Tier 2 is accomplished by embedding components of explicit instruction, including increasing the number of opportunities to respond, corrective feedback, and closer alignment of instructional materials and tactics with student needs. Implementation integrity is assessed either directly or by permanent products, and progress is monitored weekly at the student level.

Small-Group Format

Initially, students can be identified for small-group interventions in Tier 2 by their performance on universal screening tools or after implementation of a classwide intervention if needed. Their continued participation in Tier 2, as well as the specific Tier 2 support, can be determined based on their subsequent RTI during Tier 2 sessions. Each group is designed for a specific instructional target based on students' performance. For example, a group of seventh-grade students needing support in reading might be segmented into one subgroup needing assistance with comprehension skills and another needing support with multisyllabic word-analysis skills. The concept of group-based supplemental interventions is based on extensive research that has indicated the efficacy of these approaches (Dickson & Bursuck, 1999; O'Connor, 2000; Torgesen, 2004). As indicated above, current research has demonstrated that larger group sizes ($n = 5$) produce intervention effects comparable to those provided in smaller group sizes ($n = 2$; Clarke et al., 2017; Doabler et al., 2018). Thus, group size is not an important dimension of the intensity of a Tier 2 intervention, which means small-group formats are an ideal way to efficiently intensify instruction for many students in the same period of time. Groups should be populated with students who require the same type of instructional tactic and groupings should be dynamic so that students can migrate between groups as their learning needs change during the course of intervention. Intensity at Tier 2 is not solely defined by the number of minutes of instruction provided, nor the number of sessions per week, nor the number of weeks the intervention is provided, but rather is defined by the type of instruction that students receive.

Standard Protocols

Standard protocols are those instructional tactics that use a manualized or standardized approach to delivery. Because of their efficiency and efficacy, they are particularly well suited for use at Tier 2. Many children may require extra support to master essential skills. Use of a packaged intervention that has been shown to work in research reduces the burden on the system in having to find and generate the materials needed to conduct the intervention, increases the likelihood that the intervention procedures used will be effective because they have been shown to work in research settings, and are manualized for training and fidelity monitoring. The use of standard protocols in MTSS emanates from the extensive research base on the efficacy of instructional interventions (e.g., Vaughn & Fuchs, 2003). The NCII provides reviews for the evidence supporting various supplemental interventions that can be accessed at *https://charts.intensiveintervention.org/chart/instructional-intervention-tools.*

In MTSS, a standard-protocol strategy is selected because it is the right match for the students. For example, a teacher may identify two groups of students in class who require additional support to master a math concept. One group might require acquisition instruction, while the second group requires fluency-building instruction (as shown in Figure 3.3). The teacher could choose a standard protocol for delivering acquisition instruction to the group of students who need it. One example would be to use a guided practice intervention that emphasizes modeling, practice with immediate error correction, and scripted activities to build conceptual understanding. This grouping is appropriate for students who cannot accurately respond to the task. For the group needing fluency-building intervention, the teacher might use a timed trial intervention, whereby students practice responding on well-controlled practice materials to try to "beat their score" with delayed error correction, graphing gains, and a small reward for point gains. This grouping is appropriate for students in the class who can perform the skill accurately and independently but are not yet performing at mastery. The key here is that the standard protocol is selected based upon the measured learning needs of the group.

Frequent Progress Monitoring

In Tier 2, progress monitoring should occur at least weekly and should consist of short, repeated measures of critical target skills along with periodic measurement of the "goal" skill. Progress monitoring measures should demonstrate the same characteristics as those described for universal screening. They should be related to important academic attainments, be predictive of future performance, yield reliable scores, be administered efficiently, and be sensitive to small increments of change. Both CBM (e.g., ORF, brief computation, and problem-solving measures) and computer-based applications using item response theory have been demonstrated as effective for ongoing progress monitoring of these skills. Reviews of the psychometric characteristics of these measures are available on current websites of national organizations, such as the NCII (*https://charts.intensiveintervention.org/chart/progress-monitoring*). Graphs should be used to show a student's progress, so that teachers, students, and parents can track improvements and make adjustments to the intervention. In addition, the calculation of the student's rate of improvement (ROI), an RTI metric that we describe in detail in Chapter 6, is a useful basis upon which to make instructional decisions. Regularly scheduled team meetings should allocate time to examine the learning gains occurring with Tier 2 interventions and to identify groups that are not making progress so that implementation support can be provided in those cases.

Scheduling and Planning for Logistics of Delivery

To accomplish the aforementioned components of Tier 2 interventions, time in the annual school calendar and daily schedule needs to be purposefully allocated for Tier 2 instruction. First, as indicated above, time needs to be set aside for data teams to review the group data described in Tier 1 and the progress monitoring data for students receiving tiered intervention. These reviews are important so that the efforts of the remedial tutors and those of the classroom teachers are in sync. Furthermore, these data team sessions should result in "action" lists that may include in-class coaching or troubleshooting to improve learning rates in whole classes, in Tier 2 sessions, and for students receiving Tier 3 intervention. Time must be provided for teachers and others to follow through on the action list generated when the team consumes the student data. Second, time should be allocated in the weekly schedule for the actual intervention sessions. These periods have assumed a number of interesting titles, such as "tier time," "power hour," and "what I need (WIN) time." Generally, these periods are scheduled such that all students are engaged in some type of customized activity, with students needing Tier 2 or 3 supports receiving those interventions, while other students are receiving enhanced instruction in content subjects (e.g., acceleration or working on curriculum-related class projects). A depiction of this type of schedule at an elementary school is presented in Figure 3.8.

In secondary schools, periods for Tier 2 or 3 interventions are specially arranged into the overall period- or block-based schedule. Importantly, schools must give thought to the needs of all

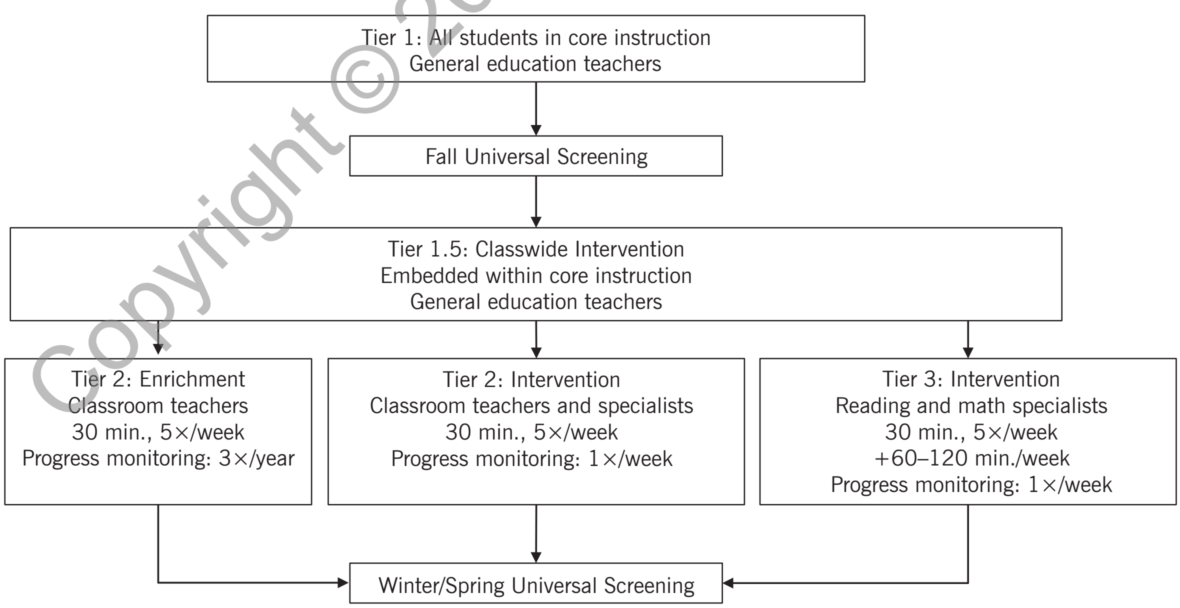

FIGURE 3.8. Example of an organizational structure for an MTSS.

students. Hence, students who do not require Tier 2 or 3 interventions should not be provided with "busy work" during tiered instructional periods. Students who are performing well should experience planned activities that allow them to apply previously mastered concepts and/or interact with more advanced content and instructional targets. Great teachers know that ensuring that all students' needs are met is no small task, and administrators must continually evaluate the degree to which this aspiration is being met, examining the learning gains experienced by all students, including those at the top end of the distribution and those at the bottom end of the distribution. Many systems seem to serve those students who are lowest performing or those who are higher performing, but unfortunately, many systems fail to do both.

It is important to consider various grouping strategies so that maximum flexibility and efficiency can be realized without negatively affecting intervention effects. Imagine a situation where multiple students in two grades staffed by three teachers in each grade need interventions, as shown in Figure 3.9. Grouping by teacher is the simplest logistically as only a single teacher's schedule is impacted—however, this way of grouping is the least efficient and results in a total of nine individual interventions having to be conducted across six teachers in two grades. Grouping within the same grade is slightly more complicated as now three teachers' schedules have to be coordinated, but given a standard supplemental intervention block on the master schedule, grouping across teachers in the same grade can usually be accomplished. Grouping across teachers in the same grade level reduces the number of individual interventions that must be conducted to three

Math Individual Interventions Grouped Across Two Grades							
		Sums to 6, 9, 12, or 20		Subtraction with Differences to 5, 9, 12, 15, or 20		Fact Families Addition and Subtraction to 5, 9, or 20	
		Acquisition	Fluency Building	Acquisition	Fluency Building	Acquisition	Fluency Building
Grade 1	Teacher A	John B.	Elena C. Jordan B.	Maggie R.	Jazzlyn C.		
	Teacher B				Oliver M.	Jonathon W.	
	Teacher C					Kate V.	Jordan M. Ben V.
Grade 2	Teacher E					Miles R.	Anjela M. Bella R.
	Teacher F				Jocelyn B. Mateo R.		Ahlman J.
	Teacher G						Lamar O.
Group Across Teachers Across Grades		+ 1 Individual	**Group: Elena C. Jordan B.**	+ 1 Individual	**Group: Jazzlyn C. Oliver M. Jocelyn B. Mateo R.**	**Group: Jonathon W. Kate V. Miles R.**	**Group: Jordan M. Ben V. Anjela M. Bella R. Ahlman J. Lamar O.**
Total: 4 Groups + 2 Individual Interventions							

FIGURE 3.9. Grouping across two grades for interventions.

individual interventions and six groups. The greatest efficiency is gained if groupings can occur across two consecutive grade levels. This option requires additional coordination of schedules, but reduces the total number of groups from six groups to four groups, and individual interventions from three to two. Because there are six teachers, all intervention can now be accomplished during a single intervention block with the classroom teachers conducting the intervention. The key to effective grouping practices is that they are adjusted frequently, as children grow at different paces during intervention.

When scheduling students for supplemental interventions, efforts to provide supports should not diminish or attenuate a student's access to his or her full dosage of instruction. To the greatest extent possible, intervention should be provided in the student's classroom or in a supplemental period at a time during which the student is not missing relevant core instruction in the key content areas of reading and mathematics.

Tier 2 Decision Making

The effects of Tier 2 interventions should be evaluated at least weekly, and students meeting exit criteria should be released from the intervention. Conversely, students who fail to make gains during Tier 2 intervention or who experience frustration and high error rates during the Tier 2 lessons should be moved to Tier 3 intervention immediately rather than enforcing some arbitrary timeline for remaining in Tier 2 intervention. We advise that the school identify a person whose responsibility it is to conduct weekly reviews of students' progress in tiered interventions and, if necessary, convene a team meeting to discuss potential modifications to the tiered support or changing the tiered support altogether as warranted.

Tier 3

Tier 3 of MTSS is reserved for those students who fail to make sufficient progress in Tier 2. Frequently, these students need more intense interventions for longer periods of time. Because the needs of students in this situation are more intense, a more complete functional academic assessment is required. Tier 3 assessment is designed for individual intervention planning. These assessments should lead to a determination of the student's instructional level and pinpoint the student's skills within an instructional hierarchy. Procedures such as CBA (Gravois & Gickling, 2008) and curriculum-based evaluation (CBE; Howell, Hosp, & Kurns, 2008; Howell & Nolet, 2000) have been specifically designed to perform these types of fine-grained skills analyses. These data also inform the development of more precise intervention strategies that can be empirically "road tested" during the course of the intervention period. We present extensive information about these procedures in Chapter 5.

Tier 3 interventions are more intense than interventions at Tier 2. Although the interventions are intended to be customized per individual, they may still be delivered in group settings, as most schools often find multiple students who display common needs. Cross-grade grouping is often utilized in these situations. Similarly, focus needs to be maintained on identifying evidence-based interventions, which are best delivered in a standard protocol (i.e., scripted) format. The difference between Tier 2 and Tier 3 interventions is that individual student assessment data are used to select the intervention and adjustments are made to intervention features to ensure that the intervention will work for that individual student. Key features of Tier 3 intervention include more narrowly defined instructional targets, instruction on lower-level/prerequisite skills, explicit instruction designed to establish accurate responding and conceptual understanding, more involved corrective feedback, and guided practice opportunities with narrowly defined task content that is gradually accelerated based on the individual student's gains. Monitoring of the student's progress should continue on a weekly basis, and data should be analyzed to adjust the intervention weekly. If not already undertaken at Tier 2, graphing of data and calculation of the student's ROI are particularly critical at Tier 3 to permit more frequent alterations to the instructional plan.

ADMINISTRATIVE LEADERSHIP AND SUPPORT

The provision of a multi-tier instructional system for most schools represents a districtwide effort toward overall school reform or restructuring. Most districts adopt MTSS/RTI because it is seen as needed for the improvement of the instructional program, and not just as an alternative way to identify students with SLD. Although individual schools have been known to undertake the development of MTSS on their own, a more sustainable practice is to move in this direction with full central office support and leadership in addition to building-level initiative.

VanDerHeyden and Tilly (2010) depicted a number of vignettes in which RTI failed to take root because of the lack of a centralized and organized vision and plan. This central leadership can be operationalized as including the involvement of critical stakeholders in the planning and implementation of the project, clear communication of expectations to staff, support for professional development, creation of alternative school schedules, and, most important, contingency planning for overcoming obstacles and scaling the implementation. Vitally important to this effort is the clear articulation of how MTSS fits with other district initiatives, including which procedures or policies are being eliminated and how programs that are being continued interface with new procedures. Coordination of resource-allocation decisions must occur up front and be revisited to ensure that resource allocations are producing the desired return and not creating unforeseen barriers. To the greatest extent possible, assessments that serve more than one mission should be selected to reduce time and resources devoted to assessment. Systems should use the data that they collect to evaluate their implementation effort (Hyson et al., 2020; Morrison & Harms, 2018). Leaders must have specific technical skills to guide MTSS, but also adaptive leadership skills to fully implement MTSS (Heifetz, 1994; Hyson et al., 2020). Implementation science (Fixsen & Blasé, 1993) connects evidence-based tactics with the behavior change needed for successful outcomes. The hub for this work is the National Implementation Research Network (NIRN; *https://nirn.fpg.unc.edu/national-implementation-research-network*), which has many useful tools that systems can use to refine their MTSS implementation effort.

MTSS implementation requires coordination of efforts across school-based personnel and leaders. This coordination can be complicated because implementers may come from different departments, schools, or offices in a district. Each group may have slightly different missions and stakeholders. The contingencies for their work may differ and create competing scenarios because their work is governed by and evaluated by slightly different outcomes. Someone must be designated to coordinate efforts across groups, and we find that the school principal plays a linchpin role for MTSS implementation at the school level. School principals are ultimately accountable for the learning of all students assigned to their school. Learning effects are discernible from annual accountability exams and performance of their students as they migrate into feeder-pattern schools. School principals may have limited control over the curricula that are chosen, but they have a great deal of control over the implementation of instruction in their classrooms. Principals are often generally free to choose (and budget for) supplemental tools that may be needed to help more children attain desired learning outcomes at the school level.

THE INVOLVEMENT OF PARENTS IN A MULTI-TIERED SYSTEM

It is perhaps inappropriate to leave the involvement of parents for the last topic in a description of a multi-tiered system, as their active participation is universally understood as a foundational principle of a reformed educational system. Furthermore, involving parents of students who are having difficulties acquiring basic skills and who may be evaluated for special education is not just a good idea—it is required by the IDEA. As described in Chapter 2, students considered as potentially needing special education must be assessed at repeated intervals and those results must be communicated to the student's parents. The IDEA also requires that the evaluation team document to parents the extent to which appropriate instruction has been provided to the student.

What is clear from these regulatory provisions is the underlying understanding that schooling works best for students experiencing difficulties when parents are an active part of the student's educational program. At minimum, the IDEA regulations suggest that parents be given clear and frequent updates about their child's progress (or lack thereof), as well as information about the interventions that are being implemented to address the student's needs. However, many practitioners in multi-tiered systems know that parental involvement not only keeps parents "in the loop" but also positively affects the student's progress. This enhanced involvement ranges from providing information about the student to providing input during intervention planning meetings to assisting with interventions in the home. After nearly two decades of implementation of MTSS/RTI, it is clear that close parent–teacher relationships facilitate student success and prevent discord.

FORM 3.1

Sample Universal Screening Assessment Inventory to Be Completed for Each Content Area Screened

Content or Skill Area	Assessment Name	Cost of Measure	Time Required to Administer	Frequency of Administration	What Decision Is Made? (circle one)	Adequacy/Accuracy of Measure?
					• Initial or continued risk/screening • Instruction or intervention development or modification/formative • Intervention effects/progress monitoring • Program evaluation	
					• Initial or continued risk/screening • Instruction or intervention development or modification/formative • Intervention effects/progress monitoring • Program evaluation	
					• Initial or continued risk/screening • Instruction or intervention development or modification/formative • Intervention effects/progress monitoring • Program evaluation	

FORM 3.2

Checklist for Screening Data Interpretation

Check if true:	Screening Data May Be Used for Decision Making If the Following Conditions Are Met:
	Measure content is aligned with state standards and reflects a skill that students have been taught and must know how to do to benefit from upcoming instruction.
	Scores on measure are predictive of future performance.
	Measure yields reliable scores.
	Measure is brief and efficiently administered.
	Measure yields scores that are sensitive to changes in learning over time.
	Assessment inventory was completed to prevent overassessment.
	Procedures were used to ensure that data collection occurred accurately.
	Graphs were generated for classroom teachers showing each child's performance relative to other children in the same class and a risk benchmark criterion.
	All students participated in screening.
	Schoolwide, gradewide, and classwide patterns of performance were evaluated to identify whether schoolwide, gradewide, or classwide problems were present.