SUPPLEMENTAL CHAPTER

MASTERY LEARNING AND RESPONSE TO INTERVENTION (RTI)

Decades of research showing the consistent, positive results from implementing mastery learning have led to general recognition of the effectiveness of its essential elements. This extensive body of evidence has also produced growing consensus among researchers about the applicability of those elements in a broad range of teaching and learning contexts. Although the terminology used to describe those elements in various fields of education sometimes differs, their value in helping students learn is widely acknowledged by researchers, policy makers, and practitioners alike.

Unfortunately, the use of different terminology to describe mastery learning's essential elements sometimes prompts confusion that can limit opportunities for educators in different fields to co-construct processes based on those elements. In some cases, proprietary concerns further restrict mutual understanding, shared commitments, and meaningful collaboration. This seems especially evident in the relationship between mastery learning and response to intervention (RTI).

In this chapter, we discuss how many modern descriptions of RTI closely parallel the mastery learning process described by Benjamin Bloom. We also describe how each of these two processes includes unique elements that could potentially strengthen the other. Finally, we consider how, together, mastery learning and RTI offer educators opportunities to enhance the effectiveness of instructional programs for *all* students.

RESPONSE TO INTERVENTION (RTI)

RTI emerged from the 2004 reauthorization of the Individuals with Disabilities Education Act (IDEA, PL 108-446), but its roots can be traced to the history of the field of learning disabilities (Preston et al., 2016). Frank Gresham (2007) argues that the basis of the RTI approach, at least in special education, actually stems from the 1982 National Research Council (NRC) report that challenged the validity of the special education classification system (see Heller et al., 1982).

Author's Note: This chapter is based on an article coauthored with Dr. Lee Ann Jung: Guskey, T. R., & Jung, L. A. (2011). Response to intervention and mastery learning: Tracing roots and seeking common ground. *The Clearing House, 84*(6), 249–255. Dr. Jung contributed significantly to that article and developed many of the ideas described in this chapter. Any misinterpretations or misrepresentations, however, are solely my responsibility.

Prior to the use of RTI, students perceived as struggling in general education classrooms were referred for evaluation for special education services based on a "discrepancy model." This model consisted of examining the discrepancy between students' cognitive capabilities, or IQ, and their observed level of performance or achievement in school. Students found to have a significant discrepancy were considered eligible for special education and frequently were served under the category of "learning disabled" (LD). In other instances, students who struggled academically were placed directly into special education based solely on IQ test scores. Eligible students typically received these special education services through a system of instruction separate from the regular classroom that may or may not have been aligned with the general education curriculum.

The problems associated with the discrepancy approach are well documented (see Moores-Abdool et al., 2008; Stanovich, 2005). One frequently noted problem is the arbitrary nature of the process used to set the level of discrepancy that determines eligibility for special education services (Richards et al., 2007). Inevitably, students who can benefit from some form of special services fail to qualify because they do not meet the established discrepancy cutoff (Stuebing et al., 2002). This is particularly true for young students who need early intervention to prevent failure and who often respond favorably to well-designed interventions.

A second problem associated with the discrepancy approach is that students enter classrooms with widely varied skills and abilities that often differ across academic areas. Students experiencing learning difficulties in one subject area may not have difficulties in other areas. Therefore, the most effective interventions focus on particular academic skills or subject-specific learning disabilities (Kavale & Spaulding, 2008). In other words, they address the needs of *all* students who are experiencing a specific learning difficulty, rather than only a select group of students who have been classified as eligible for special education (D. Fuchs & Fuchs, 2006).

RTI presents an alternative approach designed to address both of these problems (Hughes & Dexter, 2011). It is defined as "a promising new process of instruction, assessment, and intervention that allows schools to identify struggling students early, provide appropriate instructional interventions, and increase the likelihood that the students can be successful and maintain their class placement" (Mellard & Johnson, 2008, p. 1). Rather than addressing a discrepancy between cognitive ability and performance, RTI focuses on the development of specific learning skills. Its primary purpose is to distinguish students who have particular learning difficulties and then to address those difficulties directly with effective instructional strategies so that small learning errors do not become major learning problems.

RTI is generally conceptualized as a three-tier prevention model with each tier distinguished by its intervention focus and intensity (Bradley et al., 2005; Mellard & Johnson, 2008). In Tier 1, all students receive high-quality,

developmentally appropriate instruction within the general education classroom. In Tier 2, students whose classroom assessment results indicate that they are experiencing learning difficulties are given skill-specific interventions. These interventions typically involve small-group instruction targeted to the identified areas of difficulty, paired with individualized assistance. The effectiveness of Tier 2 interventions is monitored through additional classroom assessments.

Well-planned Tier 2 interventions are likely to remedy the learning difficulties of most students and allow them to return to the group-based instructional activities of Tier 1. For those few students for whom learning difficulties persist, Tier 3 provides more intensive intervention. This level of intervention may take place in the general education classroom or involve specialized assistance offered in an alternative setting. It engages students in a more intensive learning experience designed to meet their individualized learning needs. Tier 3 also serves the needs of students who may require more focused instruction to succeed but do not necessarily display a learning disability (Bradley et al., 2005).

Through this three-tier approach, RTI advocates stress that struggling students can be identified early and provided with appropriate instructional interventions that enhance their success in the general education environment. They further suggest that RTI can be used to address some of the major barriers to inclusion, especially the early and unnecessary labeling of students with learning or behavioral problems (Grosche & Volpe, 2013).

Most importantly, RTI advocates emphasize that the three tiered levels provide support to *all* students and allow for increasingly more intensive and individualized instruction. In this way, it is similar to modern descriptions of "universal design for learning" (UDL), which addresses students' needs by proactively planning for instructional, environmental, and technology supports that allow *all* students to effectively access and engage in instruction (Al-Azawei et al., 2016; Steinfeld & Maisel, 2012).

MASTERY LEARNING

As we described in Chapter 2, most modern applications of mastery learning (ML) stem from the work of Benjamin Bloom. In the late 1960s, Bloom outlined ML as a philosophy and instructional strategy to provide the more favorable learning conditions needed to help *all* students learn well and gain the many positive benefits of that success (Bloom, 1968, 1976).

Bloom's strategy included the provision of high-quality, developmentally appropriate instruction followed by a brief, diagnostic formative assessment. This assessment serves primarily to offer students feedback on their learning progress and to prescribe specific remediation procedures or "correctives" to address any identified learning difficulties. Because the correctives are specific to items or prompts within the assessment, students need to work on only

those particular concepts or skills they have not yet mastered. In other words, the correctives are individualized and specifically targeted to each student's learning needs. They offer students a new and different approach to learning the important concepts and skills from the unit.

When students complete their corrective work, usually after a class period or two, they take a second, parallel formative assessment that serves two important purposes. First, it verifies whether the correctives were successful in helping students remedy their individual learning difficulties. Second, it serves as a powerful motivational device by offering students a second chance at success.

Bloom further recommended that special enrichment or extension activities be planned for students who master the unit concepts from the initial teaching. Enrichment activities provide these students with exciting opportunities to broaden and extend their learning. Although usually related to the subject area, enrichments need not be tied directly to the content of a particular unit. Instead, they offer self-selected learning opportunities that both reward and challenge students to explore areas of their own interest.

Bloom believed that when provided with the more favorable learning conditions of ML, nearly *all* students could master specified learning goals (Bloom, 1976; Guskey, 2020). And as we described in earlier chapters, numerous investigations have confirmed his belief. When compared with students in traditionally taught classes, students in well-implemented ML classes consistently reach higher levels of achievement and develop greater confidence in their ability to learn and in themselves as learners (Anderson, 1994; Guskey & Pigott, 1988; Kulik et al., 1990).

ELEMENTS SHARED BY RESPONSE TO INTERVENTION *AND* MASTERY LEARNING

Although developed at different times, drawn from different theoretical traditions, and described in different ways, RTI and ML share many common elements. Research has consistently linked these elements to highly effective instruction and student learning success (Guskey, 2009, 2015, 2020; Marzano, 2009; Rosenshine, 2009). These shared elements include universal screening (RTI) and diagnostic preassessment with preteaching (ML); high-quality, developmentally appropriate initial instruction (Tier 1 in RTI and high-quality, group-based instruction in ML); progress monitoring (RTI) and formative assessments (ML); appropriate, evidence-based intervention (Tier 2 in RTI and corrective instruction in ML); and additional progress monitoring (RTI) and second formative assessments (ML).

Universal Screening (RTI) and Diagnostic Preassessment With Preteaching (ML)

Most descriptions of RTI stress the importance of initiating learning units with some form of universal screening. This involves administering a targeted

assessment to all students prior to beginning instruction that is quick, inexpensive, and focused on critical knowledge, skills, and behaviors. Often, and especially in the case of reading, the assessment is designed to be repeatable so that student progress can be tracked accurately and efficiently. The purpose of universal screening is to determine which students are at risk of learning difficulties and likely to require close monitoring during the instructional process.

Similarly, many descriptions of ML advocate the use of diagnostic preassessments. Like universal screening, this involves the administration of a quick and targeted assessment to all students prior to beginning instruction. In ML, however, the purpose of this preassessment is to determine if students have specific *prerequisite knowledge and skills*. In other words, it provides evidence as to whether students possess the entry-level skills needed to learn successfully the concepts and skills in the current learning unit (Guskey, 2018*a*). For those students whose preassessment results denote deficiencies, ML advocates stress that some time should be taken to directly teach unprepared students those specific prerequisite concepts and skills. In other words, teachers should affirm the conditions for success before instruction begins.

As we described in Chapter 5, Leyton (1983) studied the impact of taking time to directly teach identified prerequisite skills to entering students. Across instructional conditions, he found from 50 percent to more than 100 percent more students reached the mastery standard when they were directly taught the prerequisite knowledge and skills at the beginning of the instructional sequence. When viewed in light of other similar research (Deshler & Schumaker, 1993; Vockell, 1993), Leyton's study demonstrates the potential benefit that relatively brief preteaching can offer students whose prerequisite knowledge and skills might be weak or deficient.

High-Quality, Developmentally Appropriate Initial Instruction: Tier 1 in RTI and High-Quality, Group-Based Instruction in ML

Every description of RTI and ML emphasizes the importance of engaging all students in high-quality, developmentally appropriate instruction in the general education classroom using strategies gleaned from evidence-based research studies. In descriptions of RTI, this is generally considered Tier 1, the first level of intervention, sometimes referred to as primary prevention (D. Fuchs & Fuchs, 2006). Such instruction should be multifaceted, adapted to the context, tied to students' interests and experiences, and differentiated according to the knowledge, skills, dispositions, and background characteristics of students and should actively engage students in meaningful learning activities (Astleitner, 2005; Conroy et al., 2008; Sandall et al., 2001).

Progress Monitoring (RTI) and Formative Assessments (ML)

Another element shared by both RTI and ML is regular and systematic monitoring of student learning progress. Progress monitoring is considered one

of the most critical features of RTI and serves two important purposes. First, it helps teachers and student support teams make appropriate instructional decisions throughout all levels of the RTI process (L. Fuchs & Fuchs, 2001; Stecker et al., 2008). Second, results from progress monitoring form the basis for building more effective instructional programs for those students who are not benefiting (Jung, 2014). In essence, progress monitoring provides an indication of students' "response" within the RTI framework (Dexter & Hughes, 2009; Mellard & Johnson, 2008).

In many classrooms using RTI, progress monitoring checks are administered weekly, although they might be more frequent depending on the subject area and the nature of the class (Mahdavi, 2021). Although these assessments can take a variety of forms ranging from short quizzes to skill demonstrations, all must be curriculum-based (Stecker et al., 2005) and instructionally sensitive (Popham, 2007). In other words, they must measure the concepts and skills included in the established school curriculum and must provide evidence on the effectiveness of the learning activities in which students engaged (L. Fuchs & Fuchs, 2008).

In ML classrooms, progress monitoring is accomplished through the regular administration of formative assessments. In Chapter 2, we described how Benjamin Bloom (1968) borrowed the term *formative* from Michael Scriven (1967), who used it to describe evaluation activities performed during program implementation in order to inform developers of potential problems. Formative assessments in ML classrooms are generally more structured than the daily "checks for understanding" that teachers use while presenting lessons. Most ML teachers administer formative assessments after a week or two of instruction and design them to address the most important learning goals from an instructional unit. The primary purpose of classroom formative assessments is to give students diagnostic and prescriptive feedback on their learning progress (Hattie & Timperley, 2007). Even some RTI advocates note that "the principles of RTI are met by using formative assessments" (Barnes & Harlacher, 2008, p. 424).

Similar to the progress monitoring checks in RTI, formative assessments vary in form depending on the subject area, the grade level, and the learning outcomes involved. The feedback they provide reinforces what students were expected to learn, identifies what they learned well, and describes what they need to learn better (Guskey, 2003). Essentially, formative assessments offer specific information to guide improvements in learning. By reviewing the questions answered incorrectly or the criteria not met, both teachers and students gain individualized information about learning progress (Bloom, Hastings, et al., 1971; Bloom, Madaus, et al., 1981). Results also show where attention needs to be focused so that all students meet the unit's learning goals. Researchers such as Larry Ainsworth and Donald Viegut (2006), Kenneth Howell and Victor Nolet (2000), Robert Marzano (2003), Jeffery Smith and colleagues (2001), and Jan Chappuis and Rick Stiggins (2017) similarly emphasize the vital nature of feedback from such assessments for learning.

Elements Shared by Response to Intervention and Mastery Learning	
Response to Intervention (RTI)	**Mastery Learning (ML)**
Universal Screening	Diagnostic Preassessment With Preteaching
Tier 1: High-Quality, Developmentally Appropriate Initial Instruction	High-Quality, Group-Based Instruction
Progress Monitoring	Formative Assessments
Tier 2: Appropriate, Evidence-Based Intervention	Corrective Instruction
Additional Progress Monitoring	Second Formative Assessments

Appropriate, Evidence-Based Intervention: Tier 2 in RTI and Corrective Instruction in ML

Engaging all students in high-quality, evidence-based initial instruction in the general education classroom helps most learn well and master the important concepts and skills from the unit. But no matter how carefully teachers plan and deliver this initial instruction, some students may still experience learning difficulties and need additional assistance. The RTI progress monitoring and ML formative assessments help identify those particular students and their specific learning difficulties. To remedy those difficulties, these students move to an alternative instructional level referred to in RTI as Tier 2 intervention or secondary prevention (D. Fuchs & Fuchs, 2006) and in ML as corrective instruction (Bloom, 1971).

The goal of both Tier 2 intervention and corrective instruction is to help students achieve the grade-level performance standards established for the learning unit. Both take place in the general education classroom but may be directed by another teacher or instructional aide. Both emphasize the use of small-group instruction with individualized assistance organized according to the needs and skill level of the students involved. Both also stress that instruction at this level must be qualitatively different from the initial instruction, offering students an alternative approach and additional time to learn. ML specifically requires that corrective activities present concepts differently and involve students in learning differently than did the initial instruction. In other words, these activities should incorporate different learning preferences, learning modalities, or types of intelligence.

Many teachers find providing appropriate Tier 2 intervention or corrective instruction quite challenging. Studies show, for example, that while teachers have generally improved in their ability to draw appropriate inferences about students' levels of understanding from assessment results, most remain uncertain about the next instructional steps (Goertz et al., 2009; Heritage

et al., 2009). Many schools find, however, that giving teachers time to work collaboratively—sharing ideas, materials, and expertise—greatly enhances the quality of planned Tier 2 intervention and corrective activities (Guskey, 2008; Murawski & Hughes, 2009).

One major difference between RTI and ML applications relates to the amount of time students spend involved in these alternative instructional activities. Some RTI advocates indicate that "Tier 2 interventions should have a nine- to twelve-week duration and can be repeated as needed" (Mellard & Johnson, 2008, p. 81). Alternatively, ML proponents recommend substantially less time, suggesting that "the time needed to implement a supplemental (corrective) plan will be about 10 to 20 percent of the time spent implementing the original plan" (Block et al., 1989, p. 189). In ML classrooms, if the original instructional unit was a week or two in length, corrective instruction might last one or two days. Bloom (1974) believed that intense, individualized assistance offered early in an instructional sequence would help most students remedy learning errors before they accumulate and become major problems. As a result, students would require much less time in remediation in later units. This also would allow students involved in corrective work to return to group-based instruction more quickly and not fall further behind their classmates.

Additional Progress Monitoring (RTI) and Second Formative Assessments (ML)

Both RTI and ML approaches require frequent assessment of student learning progress to check on the effectiveness of intervention strategies. The precise frequency of these assessments varies among applications and may be affected by the severity of students' academic difficulties (Barnes & Harlacher, 2008). Sharon Vaughn and her colleagues (2007) report that in most RTI applications in reading, assessments to monitor students' progress in Tier 2 interventions occur two times a month.

Similarly in ML classrooms, upon completion of corrective work, students are administered a second formative assessment. This assessment is parallel to the first in that it addresses the learning goals from the instructional unit but includes slightly different problems, questions, or prompts. Bloom (1984) stressed that this would help students see that learning goals involve understanding important concepts and skills rather than simply memorizing answers to particular questions or prompts. As described earlier, this second formative assessment serves two important purposes in ML classes. First, it verifies whether the correctives truly helped students overcome their individual learning difficulties. Second, it offers students a second chance at success and, hence, has powerful motivational value.

ELEMENTS IN RESPONSE TO INTERVENTION AND MASTERY LEARNING THAT COMPLEMENT EACH OTHER

In addition to the elements shared by both RTI and ML, each possesses unique elements that complement and can potentially strengthen the other. These elements address aspects of RTI or ML that some critics consider drawbacks and suggest may result in potential problems. Adding these elements through synthesized implementation could add greatly to the effectiveness of each and provide the means to further enhance students' success.

Specialized, Highly Intensive Instruction: Tier 3 in Response to Intervention

If the results from additional progress monitoring in RTI or second formative assessments in ML indicate that certain students are still experiencing learning difficulties, they then move to the most intensive level of intervention in Tier 3, or tertiary prevention (D. Fuchs & Fuchs, 2006). At this stage, the parents are consulted, and those students who are not responding adequately may be referred for individualized education program (IEP)/special education evaluation (D. Fuchs & Fuchs, 2005). Some RTI advocates consider Tier 3 synonymous with special education (Mellard & Johnson, 2008), while others stress that special education is one of a variety of options (Barnes & Harlacher, 2008; Gersten et al., 2008). All agree, however, that Tier 3 interventions are designed to provide the most intensive, most highly individualized evidence-based instructional programs to address students' identified learning needs (Denton et al., 2013). Ideally, this tier is flexibly structured to allow students to move in and out as their needs change relative to the requirements of the general education curriculum (O'Connor et al., 2005). In some cases, however, it also may involve a modification of learning goals for individual students.

Most descriptions of ML programs do not include this most intensive level of intervention. In his earliest descriptions of ML, however, Benjamin Bloom (1968) stressed that the learning problems of some students are so severe that they require specialized assistance beyond what can be offered in most general education classrooms. He estimated this might be 5 to 10 percent of the student population, depending on the school. For these students, Bloom recommended individualized assistance, especially in the form of one-on-one tutoring, specifically targeting each student's identified learning needs. He also recommended that efforts be made to return these students to the general education classroom as soon as their learning problems were resolved. Lynn Fuchs (2008) offers the same recommendations in describing the qualities of effective Tier 3 intervention.

Enrichment or Extension Activities in Mastery Learning

In describing the ML process, Benjamin Bloom (1974) recognized that the high-quality, differentiated, developmentally appropriate instruction teachers offer in general education classrooms is likely to prove effective for many students. These students will be able to demonstrate their mastery of the unit concepts and skills on initial formative or progress monitoring assessments and have no need for corrective work or Tier 2 intervention. To ensure their continued learning progress, Bloom recommended that teachers provide these students with special enrichment or extension activities to broaden their learning experiences.

As we described in Chapter 7, enrichment activities are typically self-selected by students and might involve special projects or reports, academic games, or a variety of complex but engaging problem-solving tasks. They allow faster learners to explore topics and activities that might be of keen interest but lie beyond the established curriculum. We discussed how many teachers draw from activities developed for gifted and talented students when planning enrichment activities, both to simplify implementation tasks and to guarantee these students high-quality learning experiences (Block & Anderson, 1975; Whiting et al., 1995).

In the context of RTI, enrichment activities offer several advantages. First, they provide faster learners with opportunities they might not have in other classes where the only option available to students who learn well is to move on to the next curriculum unit. Based on the idea that learning is not a one-dimensional process, enrichment activities allow these students opportunities to learn subjects at a deeper level than might be set forth in the school curriculum. Second, students engaged in enrichment activities gain valuable depth of learning but do not necessarily move ahead in the school curriculum. This makes it easier for students involved in corrective work, or Tier 2 intervention, to regain their place in the general education classroom when they return. Otherwise, they would be placed in the impossible situation of having to remedy problems from past instructional units while trying to keep up with the new concepts and skills presented in a new unit.

The challenge for teachers in implementing enrichment or extension activities is to ensure that these activities provide truly valuable learning experiences for students. As we stressed in Chapter 7, it would be highly inappropriate to have faster learners simply bide their time, doing more, harder problems or completing busywork while other students are engaged in correctives or Tier 2 intervention. Enrichment activities provide these students with opportunities to pursue their interests, extend their understanding, and broaden their learning experiences. Even if enrichment involves engaging in peer tutoring, research evidence indicates that students who serve as peer tutors benefit from the experience as much as or more than the students they help (Bowman-Perrot, 2009; Wright & Cleary, 2006).

Elements Unique to Response to Intervention and Mastery Learning	
Response to Intervention (RTI)	**Mastery Learning (ML)**
Tier 3: Specialized, Highly Intensive Instruction	Enrichment or Extension Activities

SUMMARY

Consensus is growing among researchers and practitioners alike on how best to provide early identification, instruction, and targeted remediation for *all* students. That consensus extends to recognition of the value in selecting instructional interventions by skill rather than by student (Guskey, 2018b). Both researchers and practitioners also recognize the importance of determining if students' low achievement stems from lack of appropriate instruction rather than unique learning deficiencies. RTI and ML offer educators powerful tools in their efforts to help *all* students learn well. In crossing the gap from research to practice, however, both RTI and ML can be presented as narrow, constricted, and separate models rather than sets of flexible, research-based principles that guide educators to better practice (Barnes & Harlacher, 2008; Guskey, 2009). Even when practitioners understand these guiding principles, they are likely to confront varying language describing essential elements that thwart efforts to see commonalities and enhance consensus. Our purpose in describing this synthesis of the core elements of RTI and ML is to show that the differences between practices advocated by special educators and general educators are not as great as some may think. Although described using different vocabulary, the critical features of RTI and ML share common roots and common goals. Recognizing these commonalities will not only facilitate communication but also promote more effective collaboration in efforts to help *all* students learn well.

QUESTIONS FOR DISCUSSION

1. What dilemmas or conflicts have you noted in discussions of RTI and ML? Do you think teachers and school leaders generally see them as distinct, or do many recognize common elements and shared purposes in RTI and ML? What steps could be taken to make those commonalities better known?
2. What ideas do you have on how the more intensive assistance and support of Tier 3 intervention in RTI could be implemented in ML classrooms? What structural changes would be needed to provide this level of intervention? What types of support for students and for teachers would be required?

(Continued)

(Continued)

3. How could the special advantages of enrichment or extension activities of ML be incorporated in RTI classrooms? Would structural changes in instructional procedures or classroom arrangements be required? What type and level of support would be needed?
4. What advantages do you see to (1) attaching labels to learning concepts and skills rather than to students and (2) emphasizing that any label is always temporary and assigned only to guide efforts to improve? What are the implications of this change for both general education and special education? How is this change likely to impact students' perceptions of themselves?

REFERENCES

Ainsworth, L., & Viegut, D. (2006). *Common formative assessments: How to connect standards-based instruction and assessment*. Corwin.

Al-Azawei, A., Serenelli, F., & Lundqvist, K. (2016). Universal design for learning (UDL): A content analysis of peer-reviewed journal papers from 2012 to 2015. *Journal of the Scholarship of Teaching and Learning*, *16*(3), 39–56.

Anderson, S. A. (1994). *Synthesis of research on mastery learning* (ED382567). ERIC. https://eric.ed.gov/?id=ED382567

Astleitner, H. (2005). Principles of effective instruction: General standards for teachers and instructional designers. *Journal of Instructional Psychology*, *32*(1), 3–8.

Barnes, A. C., & Harlacher, J. E. (2008). Clearing the confusion: Response-to-intervention as a set of principles. *Education and Treatment of Children*, *31*(3), 417–431.

Block, J. H., & Anderson, L. W. (1975). *Mastery learning in classroom instruction*. Macmillan.

Block, J. H., Efthim, H. E., & Burns, R. B. (1989). *Building effective mastery learning schools*. Longman.

Bloom, B. S. (1968). Learning for mastery. *Evaluation Comment*, *1*(2), 1–12.

Bloom, B. S. (1971). Mastery learning. In J. H. Block (Ed.), *Mastery learning: Theory and practice* (pp. 47-63). Holt, Rinehart & Winston.

Bloom, B. S. (1974). An introduction to mastery learning theory. In J. H. Block (Ed.), *Schools, society and mastery learning* (pp. 3–14). Holt, Rinehart & Winston.

Bloom, B. S. (1976). *Human characteristics and school learning*. McGraw-Hill.

Bloom, B. S. (1984). The 2 sigma problem: The search for methods of group instruction as effective as one-to-one tutoring. *Educational Researcher*, *13*(6), 4–16.

Bloom, B. S., Hastings, J. T., & Madaus, G. F. (1971). *Handbook on formative and summative evaluation of student learning*. McGraw-Hill.

Bloom, B. S., Madaus, G. F., & Hastings, J. T. (1981). *Evaluation to improve learning*. McGraw-Hill.

Bowman-Perrot, L. (2009). Classwide peer tutoring: An effective strategy for students with emotional and behavioral disorders. *Intervention in School and Clinic*, *44*(5), 259–267.

Bradley, R., Danielson, L., & Doolittle, J. (2005). Response to intervention. *Journal of Learning Disabilities*, *38*(6), 485–486.

Chappuis, J., & Stiggins, R. J. (2017). *An introduction to student-involved assessment for learning* (7th ed.). Pearson Education.

Conroy, M. A., Sutherland, K. S., Snyder, A. L., & Marsh, S. (2008). Classwide interventions: Effective instruction makes a difference. *Teaching Exceptional Children*, *40*(6), 24–30.

Denton, C. A., Tolar, T. D., Fletcher, J. M., Barth, A. E., Vaughn, S., & Francis, D. J. (2013). Effects of Tier 3 intervention for students with persistent reading difficulties and characteristics of inadequate responders. *Journal of Educational Psychology*, *105*(3), 633–648.

Deshler, D. D., & Schumaker, J. B. (1993). Strategy mastery by at-risk students: Not a simple matter. *Elementary School Journal*, *94*(2), 153–167.

Dexter, D. D., & Hughes, C. (2009). *Progress monitoring within a response-to-intervention model*. RTI Action Network, National Center for Learning Disabilities. http://www.rtinetwork.org/learn/research/progress-monitoring-within-a-rti-model

Fuchs, D., & Fuchs, L. S. (2005). Responsiveness-to-intervention: A blueprint for practitioners, policymakers, and parents. *Teaching Exceptional Children*, *38*(1), 57–61.

Fuchs, D., & Fuchs, L. S. (2006). Introduction to response to intervention: What, why, and how valid is it? *Reading Research Quarterly*, *41*(1), 93–99.

Fuchs, L. S. (2008). *A closer look at Tier 3*. The IRIS Center. https://iris.peabody.vanderbilt.edu/module/rti05-tier3/

Fuchs, L. S., & Fuchs, D. (2001). *What is scientifically-based research on progress monitoring*? National Center on Student Progress Monitoring. https://files.eric.ed.gov/fulltext/ED502460.pdf

Fuchs, L. S., & Fuchs, D. (2008). The role of assessment within the RTI framework. In D. Fuchs, L. S. Fuchs, & S. Vaughn (Eds.), *Response to intervention: A framework for reading educators* (pp. 27–49). International Reading Association.

Gersten, R., Compton, D., Connor, C. M., Dimino, J., Santoro, L., Linan-Thompson, S., & Tilly W. D. (2008). *Assisting students struggling with reading: Response to intervention and multi-tier intervention for reading in the primary grades: A practice guide*. U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance. http://ies.ed.gov/ncee/wwc/publications/practiceguides/

Goertz, M. E., Olah, N. L., & Riggan, M. (2009). *Can interim assessments be used for instructional change?* CPRE Policy Briefs (RB-51). Graduate School of Education, University of Pennsylvania.

Gresham, F. M. (2007). Evolution of the response-to-intervention concept: Empirical foundations and recent developments. In S. R. Jimerson, M. K. Burns, & A. M. VanDerHeyden (Eds.), *Handbook of response to intervention: The science and practice of assessment and intervention* (pp. 10–24). Springer.

Grosche, M., & Volpe, R. J. (2013). Response-to-intervention (RTI) as a model to facilitate inclusion for students with learning and behaviour problems. *European Journal of Special Needs Education*, *28*(3), 254–269.

Guskey, T. R. (2003). How classroom assessments improve learning. *Educational Leadership*, *60*(5), 6–11.

Guskey, T. R. (2008). The rest of the story. *Educational Leadership*, *65*(4), 28–35.

Guskey, T. R. (2009). Mastery learning. In T. L. Good (Ed.), *21st century education: A reference handbook* (Vol. 1, pp. 194–202). Sage.

Guskey, T. R. (2015). Mastery learning. In J. D. Wright (Ed.), *International encyclopedia of the social and behavioral sciences* (2nd ed., Vol. 14, pp. 752–759). Elsevier.

Guskey, T. R. (2018a). Does pre-assessment work? *Educational Leadership*, *75*(5), 52–57.

Guskey, T. R. (2018b, May 20). Labels aren't the problem; it's their permanence and scope. *Education Week*. https://blogs.edweek.org/edweek/finding_common_ground/2018/05/labels_arent_the_problem_its_their_permanence_and_scope.html

Guskey, T. R. (2020). The theory and practice of mastery learning. In D. B. Fisher & N. Frey (Eds.), *Routledge encyclopedia of education* (Online). Taylor & Francis.

Guskey, T. R., & Jung, L. A. (2011). Response to intervention and mastery learning: Tracing roots and seeking common ground. *The Clearing House*, *84*(6), 249–255.

Guskey, T. R., & Pigott, T. D. (1988). Research on group-based mastery learning programs:

A meta-analysis. *Journal of Educational Research*, *81*(4), 197–216.

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, *77*(1), 81–112.

Heller, K. A., Holtzman, W. H., & Messick, S. (Eds.). (1982). *Placing children in special education: A strategy for equity*. National Academy Press.

Heritage, M., Kim, J., Vendlinski, T., & Herman, J. (2009). From evidence to action: A seamless process in formative assessment? *Educational Measurement: Issues and Practice*, *28*(3), 24–31.

Howell, K. W., & Nolet, V. (2000). *Curriculum-based evaluation*. Wadsworth.

Hughes, C. A., & Dexter, D. D. (2011). Response to intervention: A research-based summary. *Theory Into Practice*, *50*(1), 4–11.

Individuals with Disabilities Education Improvement Act, 20 U.S.C. § 1400 to 1482 (2004).

Jung, L. A. (2014). *A practical guide to planning interventions and progress monitoring.* Solution Tree.

Kavale, K. A., & Spaulding, L. S. (2008). Is response to intervention good policy for specific learning disability? *Learning Disabilities Research and Practice*, *23*(4), 169–179.

Kulik, C. C., Kulik, J. A., & Bangert-Drowns, R. L. (1990). Effectiveness of mastery learning programs: A meta-analysis. *Review of Educational Research*, *60*(2), 265–299.

Leyton, F. S. (1983). *The extent to which* group instruction *supplemented by mastery of initial cognitive prerequisites approximates the learning effectiveness of one-to-one tutorial methods* [Unpublished doctoral dissertation]. University of Chicago.

Mahdavi, J. N. (2021). *A teacher's guide to progress monitoring: Track goals to refine instruction for all students*. Paul H. Brookes.

Marzano, R. J. (2003). *What works in schools: Translating research into practice*. Association for Supervision and Curriculum Development.

Marzano, R. J. (2009). Setting the record straight on "high yield" strategies. *Phi Delta Kappan*, *91*(1), 30–37.

Mellard, D. F., & Johnson, E. (2008). *RTI: A practitioner's guide to implementing response to intervention*. Corwin.

Moores-Abdool, W., Unzueta, C. H., Vazquez Donet, D., & Bijlsma, E. (2008). Discrepancy dinosaurs and the evolution of specific learning disability assessment. *Journal of the Scholarship of Teaching and Learning*, *8*(2), 75–83.

Murawski, W. W., & Hughes, C. E. (2009). Response to intervention, collaboration, and co-teaching: A logical combination for successful systemic change. *Preventing School Failure*, *53*(4), 267–277.

O'Connor, R. E., Harty, K. R., & Fulmer, D. (2005). Tiers of intervention in kindergarten through third grade. *Journal of Learning Disabilities*, *38*(6), 532–538.

Popham, W. J. (2007). Instructionally insensitivity of tests: Accountability's dire drawback. *Phi Delta Kappan*, *89*(2), 146–150.

Preston, A. I., Wood, C. L., & Stecker, P. M. (2016). Response to intervention: Where it came from and where it's going. *Preventing School Failure: Alternative Education for Children and Youth*, *60*(3), 173–182.

Richards, C., Pavri, S., Golez, F., Canges, R., & Murphy, J. (2007). Response to intervention: Building the capacity of teachers to serve students with learning difficulties. *Issues in Teacher Education*, *16*(2), 55–64.

Rosenshine, B. (2009). Systematic instruction. In T. L. Good (Ed.), *21st century education: A reference handbook* (Vol. 1, pp. 235–243). Sage.

Sandall, S., Schwartz, I., & Joseph, G. (2001). A building blocks model for effective instruction in inclusive early childhood settings. *Young Exceptional Children*, *4*(3), 3–9.

Scriven, M. S. (1967). The methodology of evaluation. In R. W. Tyler, R. M. Gagne, & M. Scriven (Eds.), *Perspectives of curriculum evaluation* (pp. 39-83). AERA Monograph Series on Curriculum Evaluation, No. 1. Rand McNally.

Smith, J. K., Smith, L. F., & DeLisi, R. (2001). *Natural classroom assessment: Designing seamless instruction and assessment.* Corwin.

Stanovich, K. E. (2005). The future of a mistake: Will discrepancy measurement continue to make the learning disabilities field a pseudo-science? *Learning Disability Quarterly*, *28*(2), 103.

Stecker, P. M., Fuchs, D., & Fuchs, L. S. (2008). Progress monitoring as essential practice within response to intervention. *Rural Special Education Quarterly, 27*(4), 10–17.

Stecker, P. M., Fuchs, L. S., & Fuchs, D. (2005). Using curriculum-based measurement to improve student achievement: Review of research. *Psychology in the Schools*, *42*(8), 795–819.

Steinfeld, E., & Maisel, J. (2012). *Universal design: Creating inclusive environments*. Wiley.

Stuebing, K. K., Fletcher, J. M., LeDoux, J. M., Lyon, G. R., Shaywitz, S. E., & Shaywitz, B. A. (2002). Validity of IQ-discrepancy classifications of reading disabilities: A meta-analysis. *American Educational Research Journal*, *39*(2), 469–518.

Vaughn, S., Wanzek, J., Woodruff, A. L., & Linan-Thompson, S. (2007). Prevention and early identification of students with reading disabilities. In D. Haager, J. Klinger, & S. Vaughn (Eds.), *Evidence-based reading practices for response to intervention* (pp. 11–27). Paul H. Brookes.

Vockell, E. L. (1993). Why schools fail and what we can do about it. *Clearing House*, *66*(4), 200–205.

Whiting, B., Van Burgh, J. W., & Render, G. F. (1995). *Mastery learning in the classroom* [Paper presentation]. American Educational Research Association Annual Meeting, San Francisco, CA, United States.

Wright, J., & Cleary, K. S. (2006). Kids in the tutor seat: Building schools' capacity to help struggling readers through a cross-age peer-tutoring program. *Psychology in the Schools*, *43*(1), 99–107.