BEST PRACTICES FOR DIFFERENTIATED INSTRUCTION

Prepared for WASA School Information and Research Service

March 2018

In the following report, Hanover Research reviews best practices in differentiated instruction and multi-tiered systems of support.

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EXECUTIVE SUMMARY

INTRODUCTION

In this report, Hanover Research reviews the literature on differentiated instruction and multi-tiered systems of support (MTSS). This research is intended to support Washington school districts in differentiating instruction to support diverse students within an MTSS framework. The report includes the following sections:

- **Section I** provides a general overview of differentiated instruction, including research on the effectiveness of differentiated instruction and best practices in administrative support for differentiated instruction.
- **Section II** reviews MTSS frameworks that support differentiated instruction, including essential elements of MTSS and administrative strategies to support MTSS at the school level.

KEY FINDINGS

- **Differentiated instruction uses strategies such as heterogeneous grouping and team teaching to ensure that general classroom instruction is accessible for all students.** Teachers differentiate instruction by adjusting the content, process, product, and affect of instruction to meet individual student needs. Differentiation requires teachers to plan instruction that meets all students' needs and adjust instruction in response to unanticipated needs.
- **Differentiated instruction is a core element of MTSS.** However, differentiation and MTSS target different aspects of instruction. Differentiation focuses on varying instruction to meet individual student needs, while MTSS frameworks focus on providing more intensive supports to students who do not respond to effective Tier I instruction. Teachers can use differentiation as a strategy to support effective Tier I instruction within an MTSS framework, and should ensure that students receive differentiated instruction before being referred to more intensive interventions.
- **Teachers need substantial professional development to differentiate instruction effectively**. Professional development may be more effective when it includes opportunities for collaboration and differentiation to meet individual teacher needs. Some schools use professional learning communities (PLCs) to incorporate collaboration into professional development.
- **Schools can use classroom observations to support professional development and monitor the implementation of differentiated instruction**. Schools can also combine classroom observations with teacher evaluations and surveys or focus groups to identify professional development needs. To support classroom observations, schools can purchase proprietary observation instruments or develop their own instruments that align with state and local standards.

- **Differentiation requires effective formative assessments**. Teachers use formative assessments to diagnose each student's ability to learn course content and match instructional strategies to each student's level of readiness. The MTSS process requires universal screening tools and progress-monitoring assessments. Teachers can combine assessment data with their knowledge of students' interests, needs, and relationships to support differentiation.

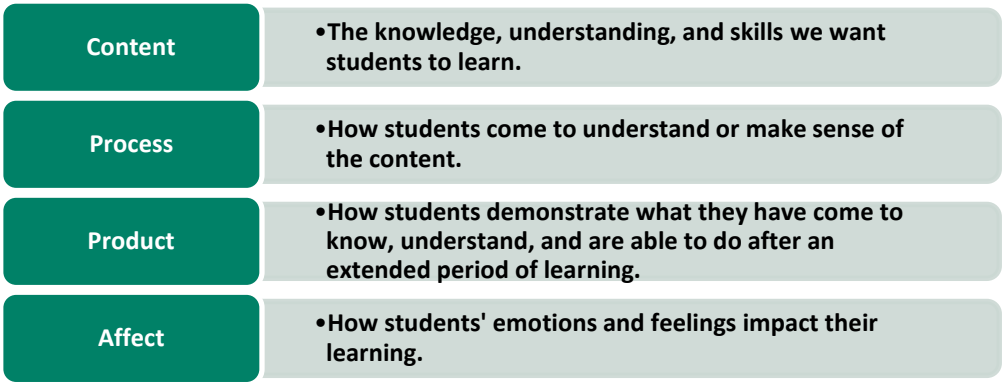
SECTION I: DIFFERENTIATED INSTRUCTION

In this section, Hanover Research discusses the use of differentiated instruction to support student achievement. This section begins with an overview of differentiated instruction, including research on the effectiveness of differentiated instruction. This section goes on to review faculty supports and professional development needed to support differentiated instruction.

OVERVIEW

Differentiated instruction uses strategies such as heterogeneous grouping to ensure that general classroom instruction is accessible for all students. The NCRTI emphasizes that differentiated instruction is a distinct process from providing interventions within an MTSS framework as discussed in Section II of this report.[1] The goal of differentiated education is to ensure that all students learning in the same classroom have equitable access to educational opportunities and resources that meet their needs.[2] Teachers can differentiate instruction by adjusting the four elements shown in Figure 1.1 based on students' interests, learning preferences, and readiness.

Figure 1.1: Elements of Instruction for Differentiation



Source: Association for Supervision and Curriculum Development[3]

Differentiation is distinct from the Universal Design for Learning (UDL) framework in that differentiated instruction adjusts instructional strategies to meet individual student needs identified through formative assessment, while UDL proactively designs instruction to be

[1] "Essential Components of RTI – A Closer Look at Response to Intervention." National Center on Response to Intervention. p. 9. http://www.rti4success.org/sites/default/files/rtiessentialcomponents_042710.pdf

[2] Tomlinson, C.A. "The Differentiated Classroom: Responding to the Needs of All Learners, 2nd Edition." Association for Supervision and Curriculum Development, May 2014. http://www.ascd.org/publications/books/108029/chapters/What-Is-a-Differentiated-Classroom%C2%A2.aspx

[3] Chart contents taken directly from: Tomlinson, C.A. and M.B. Imbeau. "Understanding Differentiation in Order to Lead: Aiming for Fidelity to a Model." Association for Supervision and Curriculum Development, November 2010. http://www.ascd.org/publications/books/108011/chapters/Understanding-Differentiation-in-Order-to-Lead@-Aiming-for-Fidelity-to-a-Model.aspx

accessible for all students.[4] However, the Washington Office of the Superintendent of Public Instruction (OSPI) recommends that teachers use UDL principles to support flexible grouping for differentiated instruction.[5] The following is a list of widely recognized instructional strategies that can be implemented in the classroom to promote differentiated education:

- **Cooperative Learning** is "the instructional use of small groups so that students work together to maximize their own and each other's learning… Class members are organized into small groups after receiving instruction from the teacher. They then work through the assignment until all group members successfully understand and complete it."[6] Sometimes this approach to differentiated instruction is referred to as flexible grouping.[7]
- **Project-Based or Problem-Based Learning** is a "dynamic approach to teaching in which students explore real-world problems and challenges… The teacher plays the role of facilitator, working with students to frame worthwhile questions, structuring meaningful tasks, coaching both knowledge development and social skills, and carefully assessing what students have learned from the experience."[8]
- **Learning Stations** "are created for one lesson and contain tasks that address different challenges."[9] Students rotate among the stations and complete the lesson within a given time frame.[10]
- **Flipping the Classroom** is a strategy in which teachers reverse the typical order of classroom instruction and homework. Teachers assign video lectures as homework to deliver initial instruction, and then assign problems that would ordinarily be assigned as homework during class time. This strategy facilitates grouping to support differentiation and allows teachers to provide more individual feedback.[11]

The educational consulting organization K-12 Blueprint has developed a list of differentiation strategies to support English Language Learners (ELLs), students with disabilities, and above or below grade-level students, available here.[12] School districts have also developed lists of differentiation strategies for each aspect of instruction.[13] Figure 1.2 shows differentiation strategies recommended by Edison Township Public Schools in New Jersey.

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[4] Darrow, A.-A. "Differentiated Instruction for Students With Disabilities: Using DI in the Music Classroom." *General Music Today*, 28:2, January 1, 2015. p. 30. https://doi.org/10.1177/1048371314554279

[5] "Washington State Comprehensive Literacy Plan: Birth to Grade 12." Washington Office of the Superintendent of Public Instruction, June 2012. p. 12. http://www.k12.wa.us/ELA/pubdocs/CLP.pdf

[6] De Jesus, O.N.. "Differentiated Instruction: Can Differentiated Instruction Provide Success for All Learners?" *National Teacher Education Journal*, 5:3, Summer 2012. p. 7.

[7] King-Shaver, B. "Differentiated Instruction: The New and Not So New." *California English*, 13:4, April 2008. p. 7. https://aorakiehsas.wikispaces.com/file/view/new+and+old+of+differentiation.pdf

[8] De Jesus, Op. cit., pp. 7–8.

[9] King-Shaver, Op. cit., p. 7.

[10] Ibid.

[11] Siegle, D. "Technology: Differentiating Instruction by Flipping the Classroom." *Gifted Child Today*, 37:1, January 1, 2014. pp. 51–52. https://doi.org/10.1177/1076217513497579

[12] "Common Core Standards and Differentiated Instruction." K-12 Blueprint, 2014. https://www.k12blueprint.com/sites/default/files/CC-Differentiated-Instruction.pdf

[13] Figurelli, S. and K. Tsaoys. "Strategies to Differentiate Instruction." Edison Township Public Schools. https://www.edison.k12.nj.us/cms/lib/NJ01001623/Centricity/Domain/58/DI_definition_and_strategies.pdf

Figure 1.2: Edison Township Public Schools Differentiation Strategies

Aspect of Instruction	Differentiation Strategies	
Content	▪ Determined through formative assessment ▪ Using reading materials at varying readability levels ▪ Putting text materials on tape/CD ▪ Using spelling/vocabulary lists at readiness level of students ▪ Presenting ideas through auditory, visual, kinesthetic, & tactile means ▪ Using reading buddies	▪ Flexible grouping ▪ Compacting ▪ Meeting with small groups to reteach idea/skill, or to extend the thinking/skill ▪ Multi-leveled questions ▪ Modeling
Process	▪ Tiered activities ▪ Centers/Stations ▪ Developing personal agendas ▪ Manipulatives ▪ Varying the length of time a student may take to complete a task ▪ Cubing ▪ Learning logs or journals ▪ Note-taking organizers	▪ Graphic organizers ▪ Highlighted materials ▪ Jigsaw ▪ Think, Pair, Share ▪ Learning Menus ▪ Webquests ▪ Labs ▪ Role Play / Simulations
Product	▪ Choice boards ▪ Podcast ▪ Blog ▪ Presentation ▪ Quiz/Test	▪ Using rubrics that match and extend students' varied skill levels. ▪ Encouraging students to create their own product assignment. ▪ Enabling students to use contemporary media/technology as tools to demonstrate knowledge and understanding

Source: Edison Township Public Schools[14]

[14] Chart contents taken with very minor alterations from: Ibid., p. 1.

IMPACT OF DIFFERENTIATED INSTRUCTION

It should be noted that the use of differentiated instruction as an alternative to separate classes for gifted students or students with disabilities is controversial within the field of education. Opponents of differentiated instruction argue that differentiation is difficult or impossible to implement effectively.[15] A 2009 article published in the journal *Gifted Education Quarterly* reports that teachers often resist differentiated instruction due to the additional planning required, and may fail to provide adequate differentiation for gifted students.[16] An attempt to study the long-term impacts of differentiated instruction failed when the author found that teachers did not implement differentiated instruction even after receiving substantial professional development and coaching.[17]

A 2010 book published by the nonprofit educational research organization Mid-Continent Research for Education and Learning (McREL) notes that "no empirical evidence exists to confirm that the total package of differentiated instruction… has a positive impact on student achievement."[18] The author notes that research on components of differentiated instruction, particularly aligning instruction to students' learning styles, does not find substantial effects on student achievement.[19] Further, a 2017 study published in *School Effectiveness and School Improvement* finds no correlation between teachers' use of differentiated instruction measured through classroom observations and student achievement.[20]

However, advocates of differentiated instruction argue that differentiation is essential to avoid ability tracking.[21] More recent research finds some positive effects of differentiated instruction. For example, a 2014 study in the *Journal of Advanced Academics* examined differentiated instruction intervention implemented across four middle schools and finds significant positive effects on reading achievement in two schools and no significant effects in two schools.[22] Further, a 2013 study of a differentiated mathematics curriculum for Grade 3 students finds that the differentiated curriculum improved student achievement for high

[15] Delisle, J.R. "Differentiation Doesn't Work." *Education Week*, January 7, 2015. https://www.edweek.org/ew/articles/2015/01/07/differentiation-doesnt-work.html

[16] Hertberg-Davis, H. "Myth 7: Differentiation in the Regular Classroom Is Equivalent to Gifted Programs and Is Sufficient: Classroom Teachers Have the Time, the Skill, and the Will to Differentiate Adequately." *Gifted Child Quarterly*, 53:4, October 1, 2009. p. 252. https://doi.org/10.1177/0016986209346927

[17] Petrilli, M.J. "All Together Now?" Education Next, November 18, 2010. http://educationnext.org/all-together-now/

[18] Goodwin, B. "Changing the Odds for Student Success: What Matters Most." Mid-Continent Research for Education and Learning, 2010. p. 13. https://www.mcrel.org/wp-content/uploads/2015/10/CTOPub.pdf

[19] Ibid., pp. 13–14.

[20] Faber, J.M., C.A.W. Glas, and A.J. Visscher. "Differentiated Instruction in a Data-Based Decision-Making Context." *School Effectiveness and School Improvement*, 29:1, January 2, 2018. https://doi.org/10.1080/09243453.2017.1366342

[21] Tomlinson, C.A. "Differentiation Does, in Fact, Work." *Education Week*, January 28, 2015. https://www.edweek.org/ew/articles/2015/01/28/differentiation-does-in-fact-work.html

[22] Little, C.A., D.B. McCoach, and S.M. Reis. "Effects of Differentiated Reading Instruction on Student Achievement in Middle School." *Journal of Advanced Academics*, 25:4, November 1, 2014. p. 394. https://doi.org/10.1177/1932202X14549250

achieving students in low achieving schools, although the overall effect of the curriculum was not statistically significant.[23]

Schools should avoid differentiation based on perceived learning styles, and rely on research-based assessment instruments to inform instructional decisions. A 2009 review of existing research on learning styles published in the journal *Psychological Science in the Public Interest* concludes that "at present, there is no adequate evidence base to justify incorporating learning-styles assessments into general educational practice."[24] More recent research does not appear to have identified positive impacts of using learning styles to guide instruction, and an open letter signed by several prominent professors of education and psychology in 2017 condemns the use of learning styles as a waste of resources.[25] Schools should also use caution in adopting differentiation strategies based on the theory of multiple intelligences, which has not been supported by empirical research.[26]

The What Works Clearinghouse (WWC) recommends differentiating instruction as part of an RTI model for reading instruction in the primary grades despite the limited evidence base.[27] Section II of this report discusses multi-tiered systems of support (MTSS) which incorporate differentiated instruction as a Tier I instructional strategy for all students.

INSTRUCTIONAL PLANNING

Differentiated instruction requires teachers to plan instruction that meets each students' needs. Classroom teachers may wish to collaborate with other school personnel, such as content-area coaches, speech and language therapists, special education teachers, and gifted education teachers.[28] Figure 1.3 shows a process for differentiating instruction recommended by the 2013 book *Teacher's Survival Guide: Differentiating Instruction in the Elementary School Classroom*. This process uses learning goals identified through instructional planning and pre-assessment data to inform the actual differentiation of instruction.

[23] Gubbins, E.J. et al. "What Works in Gifted Education Mathematics Study: Impact of Pre-Differentiated and Enriched Curricula on General Education Teachers and Their Students." National Research Center on the Gifted and Talented, June 2013. p. vi. https://eric.ed.gov/?q=differentiated+instruction+professional+development&ft=on&id=ED574537

[24] Pashler, H. et al. "Learning Styles: Concepts and Evidence." *Psychological Science in the Public Interest*, 9:3, December 1, 2008. p. 105. https://doi.org/10.1111/j.1539-6053.2009.01038.x

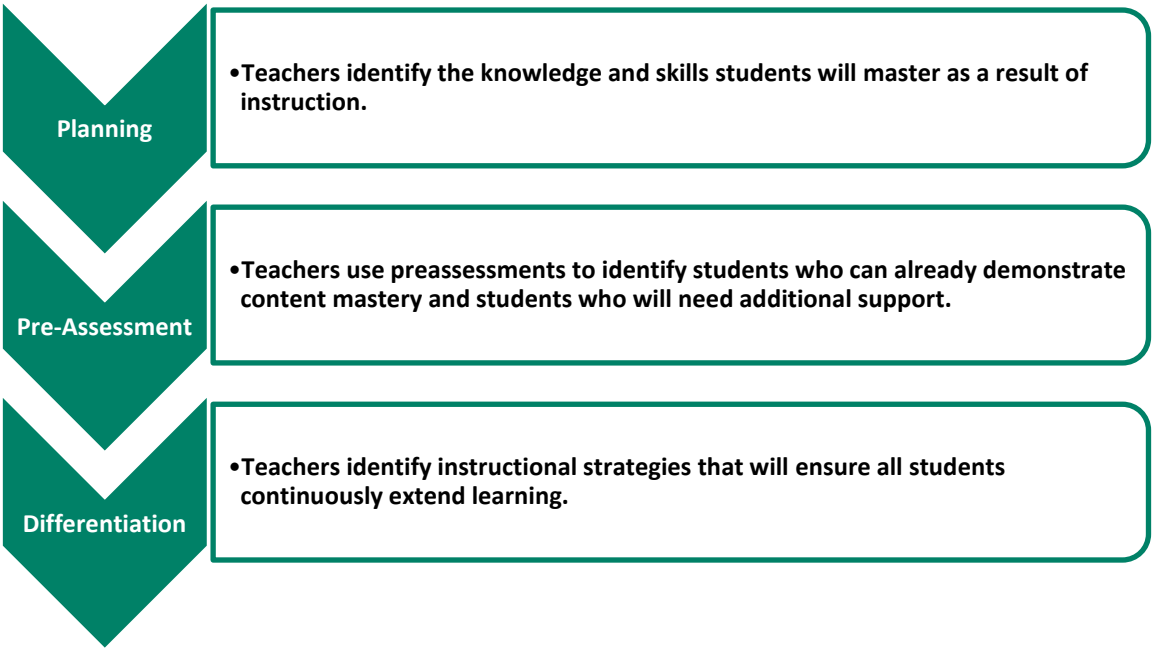
[25] Hood, B. et al. "No Evidence to Back Idea of Learning Styles." *The Guardian*, March 12, 2017. http://www.theguardian.com/education/2017/mar/12/no-evidence-to-back-idea-of-learning-styles

[26] McGreal, S.A. "The Illusory Theory of Multiple Intelligences." *Psychology Today*, 2013. http://www.psychologytoday.com/blog/unique-everybody-else/201311/the-illusory-theory-multiple-intelligences

[27] Gersten, R. et al. "Assisting Students Struggling with Reading: Response to Intervention and Multi-Tier Intervention in the Primary Grades." What Works Clearinghouse, February 2009. pp. 17–18. https://ies.ed.gov/ncee/wwc/Docs/PracticeGuide/rti_reading_pg_021809.pdf

[28] Thousand, J.S., R.A. Villa, and A.I. Nevin. *Differentiating Instruction: Planning for Universal Design and Teaching for College and Career Readiness*. Corwin Press, 2014. p. 11. https://us.corwin.com/sites/default/files/upm-binaries/67615_Pages_from_Thousand_1_Differentiating_Instruction_2e_3.pdf

Figure 1.3: Recommended Process for Differentiating Instruction



Source: *Teacher's Survival Guide: Differentiating Instruction in the Elementary School Classroom*[29]

Moving from the pre-assessment stage to the differentiation stage requires effective instructional planning to identify learning goals.[30] Instructional design connects learning, assessment, and resources to desired learning outcomes.[31] Learning outcomes should align with relevant district or state learning standards.[32] The Tennessee Department of Education recommends that instructional plans for differentiated instruction include the elements listed in Figure 1.4.

[29] Chart contents adapted from: Roberts, J.L. and T.F. Inman. "Teacher's Survival Guide: Differentiating Instruction in the Elementary School Classroom." Prufrock Press, 2013. p. 11. http://www.prufrock.com/Assets/ClientPages/pdfs/TSG_Diff_Elem_Sample.pdf

[30] Ibid., p. 12.

[31] "Making a Difference: Meeting Diverse Learning Needs with Differentiated Instruction." Alberta Education, Curriculum Sector, 2010. p. 15. https://education.alberta.ca/media/384968/makingadifference_2010.pdf

[32] Roberts and Inman, Op. cit., p. 79.

Figure 1.4: Lesson Planning Components for Differentiated Instruction

Source: Tennessee Department of Education[33]

Differentiated instruction also requires teachers to adapt lessons during instruction to meet "needs that were not or could not be anticipated."[34] Teachers should plan initial instruction to be accessible to all students, but the instructional process may reveal student needs that were not apparent during the planning process. In these cases, teachers need to retrofit instruction to address new student needs.[35]

ASSESSMENT STRATEGIES

Classroom differentiation requires an effective formative assessment strategy to align activities with learning standards.[36] Teachers use formative assessments to diagnose each student's ability to learn course content and match instructional strategies to each student's level of readiness.[37] The Tennessee Department of Education recommends that teachers use the following assessments to identify student needs for differentiation:[38]

[33] Chart contents taken directly from: "Scaffolding and Differentiation in Core Instruction for Students with a Disability." Tennessee Department of Education, May 20, 2014. pp. 26–27. https://www.lipscomb.edu/ayers/upload/file/66169/scaffolding%20and%20differntiation%205-20-14.pdf

[34] Parsons, S. and S. Dodman. "Broadening the View of Differentiated Instruction." *Phi Delta Kappan*, 95:1, 2013. https://www.researchgate.net/profile/Seth_Parsons2/publication/267099116_Broadening_the_view_of_differentiated_instruction/links/5445e0d10cf2f14fb80f074b.pdf

[35] Thousand, Villa, and Nevin, Op. cit., pp. 11–12.

[36] Doubet, K.J. "Formative Assessment Jump-Starts a Middle Grades Differentiation Initiative: A School Focuses on Formative Assessment to Support Its Efforts to Differentiate Instruction." *Middle School Journal*, 43:3, 2012. p. 32. http://www.gcisd-k12.org/cms/lib4/TX01000829/Centricity/Domain/75/formative%20assessment%20and%20diff.pdf

[37] Darrow, Op. cit., p. 30.

[38] Bulleted text taken nearly verbatim from: "Scaffolding and Differentiation in Core Instruction for Students with a Disability," Op. cit., p. 17.

- Universal screening and progress monitoring assessments (Section II of this report discusses universal screening and progress monitoring within the context of MTSS),
- Pre-assessments,
- Background knowledge surveys and KWL (Know, Want to Know, Learned) charts, and
- Self-assessments.

Teachers should also consider data from prior assessments, including student data profiles and records of previous interventions and supports.[39] The Florida Department of Education identifies the potential data sources to support instructional decisions listed in Figure 1.5.

Figure 1.5: Potential Sources of Data to Support Instructional Decisions

- **Student work samples**
- **Formal and informal observations**
- **Specific skill assessment**
- **Interviews/surveys (student or parent)**
- **Grades, report cards, cumulative records**
- **Checklists**
- **Progress monitoring**
- **Performance assessments**
- **Anecdotal data**

Source: Florida Department of Education; Bureau of Exceptional Education and Student Services[40]

Alberta Education recommends using assessment data to create a learning profile for each student. Learning profiles combine assessment data with information on students' backgrounds and preferences to identify strengths and development areas, as well as interventions that have previously been effective for individual students.[41] Classroom teachers can combine assessment data with their knowledge of students' learning needs to differentiate instruction within the classroom. Teachers should create profiles of their student's interests, social-emotional needs, and relationships to support effective grouping decisions.[42]

In addition to assessing students to support differentiation, schools should differentiate the assessment process itself to offer students multiple formats to demonstrate academic performance. Differentiated assessment, in turn, informs further differentiation of instruction.[43] Different types of assessments should comprise an assortment of evaluative measures and rubrics for grading student progress.[44] Figure 1.6 shows strategies to differentiate assessment recommended by Alberta Education.

[39] Ibid.

[40] Chart contents taken directly from: "Teacher's Guide to Problem Solving Within The MTSS Framework." Florida Department of Education; Bureau of Exceptional Education and Student Services, 2011. p. 11. http://floridarti.usf.edu/resources/format/pdf/Teacher's%20Guide%20to%20Problem%20Solving%20Within%20The%20MTSS%20Framework.pdf

[41] "Making a Difference," Op. cit., p. 24.

[42] Hill, R. and D. Dworet. "Differentiated Instruction: Planning for Success." *Teaching and Learning*, 5:1, August 7, 2009. p. 65. https://brock.scholarsportal.info/journals/teachingandlearning/home/article/view/302

[43] "Making a Difference," Op. cit., p. 46.

[44] Tomlinson, "The Differentiated Classroom: Responding to the Needs of All Learners, 2nd Edition," Op. cit.

Figure 1.6: Strategies to Differentiate Assessment

Strategy	Description
Supporting Students with Learning Difficulties	Teachers can adapt assessment modifications designed to support students with learning difficulties to support students who do not have an individualized education plan (IEP), but who appear to have similar learning needs.
Rethinking Grading Practices	Teachers can incorporate support for student choice and differentiated support into their course grading process.
Assessment-for-Learning Practices	Teachers can implement assessment-for-learning strategies such as exit slips, growth portfolios, learning logs, and reflective journals
Facilitating Metacognition	Teachers can implement personalized assessment strategies to encourage students to reflect on their learning.

Source: Alberta Education[45]

FACULTY SUPPORT AND PROFESSIONAL DEVELOPMENT

School leaders and other administrators should implement a systematic strategy to develop teachers' capacity to differentiate instruction. The 2014 book *Differentiating Instruction: Planning for Universal Design and Teaching for College and Career Readiness* recommends that schools develop action plans to support differentiated instruction. These action plans should include specific activities to build capacity for differentiated instruction, such as those listed in Figure 1.7.[46]

Figure 1.7: Capacity-Building Strategies to Support Differentiated Instruction

- **Advocate for differentiated instruction**
- **Include collaborative planning and differentiation of instruction in formal job descriptions**
- **Build time for collaboration into the master schedule**
- **Create support groups for staff implementing differentiated instruction**
- **Provide professional development focused on differentiated instruction**
- **Publicly recognize teachers who have successfully implemented differentiated instruction**
- **Provide incentives for teachers who differentiate instruction in their classroom**

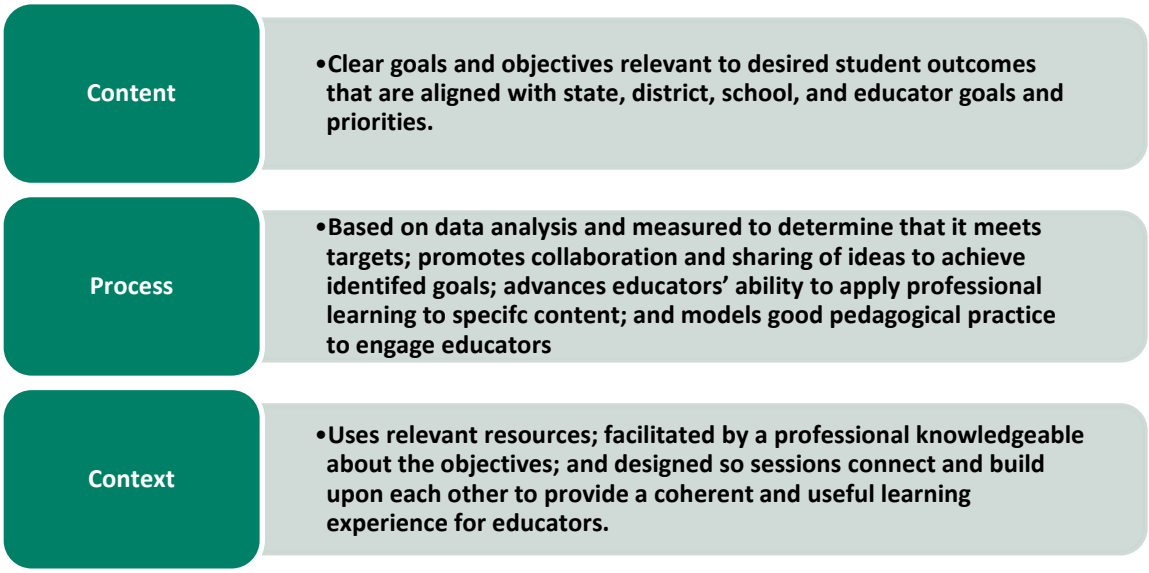
Source: Differentiating Instruction: Planning for Universal Design and Teaching for College and Career Readiness[47]

[45] Chart contents adapted from: "Making a Difference," Op. cit., p. 47.
[46] Thousand, Villa, and Nevin, Op. cit., p. 15.
[47] Chart adapted from: Ibid.

PROFESSIONAL DEVELOPMENT

Schools should include professional development in their capacity-building strategies for differentiated instruction. Current teachers are likely not to have been exposed to differentiated instruction during their K-12 education, and need professional development to provide "role models to build on."[48] A 2014 study published in the *Journal for the Education of the Gifted* finds that professional development can enhance teachers' sense of self-efficacy with regards to differentiation. In return, teachers with high levels of self-efficacy are more likely to implement differentiation strategies.[49] Professional development should align with Washington's standards for professional learning outlined in Figure 1.8.

Figure 1.8: Washington Standards for Professional Learning



Source: Washington Office of the Superintendent of Public Instruction[50]

Individual teachers may need varying levels of support from professional development activities. Some teachers may already incorporate aspects of differentiated instruction into their teaching, and professional development should build on these practices. A 2009 book published by the ASCD recommends that schools differentiate professional development for teachers.[51]

[48] Roberts and Inman, Op. cit., p. 9.
[49] Dixon, F.A.. et al. "Differentiated Instruction, Professional Development, and Teacher Efficacy." *Journal for the Education of the Gifted*, 37:2, June 2014. pp. 120–121. Accessed via EBSCOhost
[50] Chart contents taken directly from: Murphy, B., V. Savath, and C. Miccio. "Transforming Professional Learning in Washington State: Lessons from the Field." Washington Office of the Superintendent of Public Instruction, 2017. p. 5. http://www.k12.wa.us/CurriculumInstruct/ProfessionalLearning/pubdocs/WA-TPL-LessonsfromtheField-FullReport.pdf
[51] Strickland, C.A. *Professional Development for Differentiating Instruction: An ASCD Action Tool*. ASCD, 2009. http://www.ascd.org/publications/books/109042/chapters/What_Is_High-Quality_Professional_Development_for_Differentiating_Instruction.aspx

COLLABORATIVE PROFESSIONAL DEVELOPMENT

The OSPI recommends incorporating collaboration into all professional development to support continuous improvement.[52] Research also finds potential benefits of collaborative professional development specifically for differentiated instruction. A 2014 survey conducted by the Gates Foundation finds that 50 percent of teachers in schools with strong collaboration environments report that professional development effectively prepares them to differentiate instruction.[53] The study rates the collaboration environments of schools using the aspects listed in Figure 1.9.

Figure 1.9: Aspects of Teacher Collaboration

- **Formal collaboration time built into the master schedule**
- **Shared instructional planning responsibilities (lessons planned in groups or on rotating basis)**
- **Positive culture around collaboration (i.e., grade-level/ subject-area teams trust and support each other)**

Source: The Bill and Melinda Gates Foundation[54]

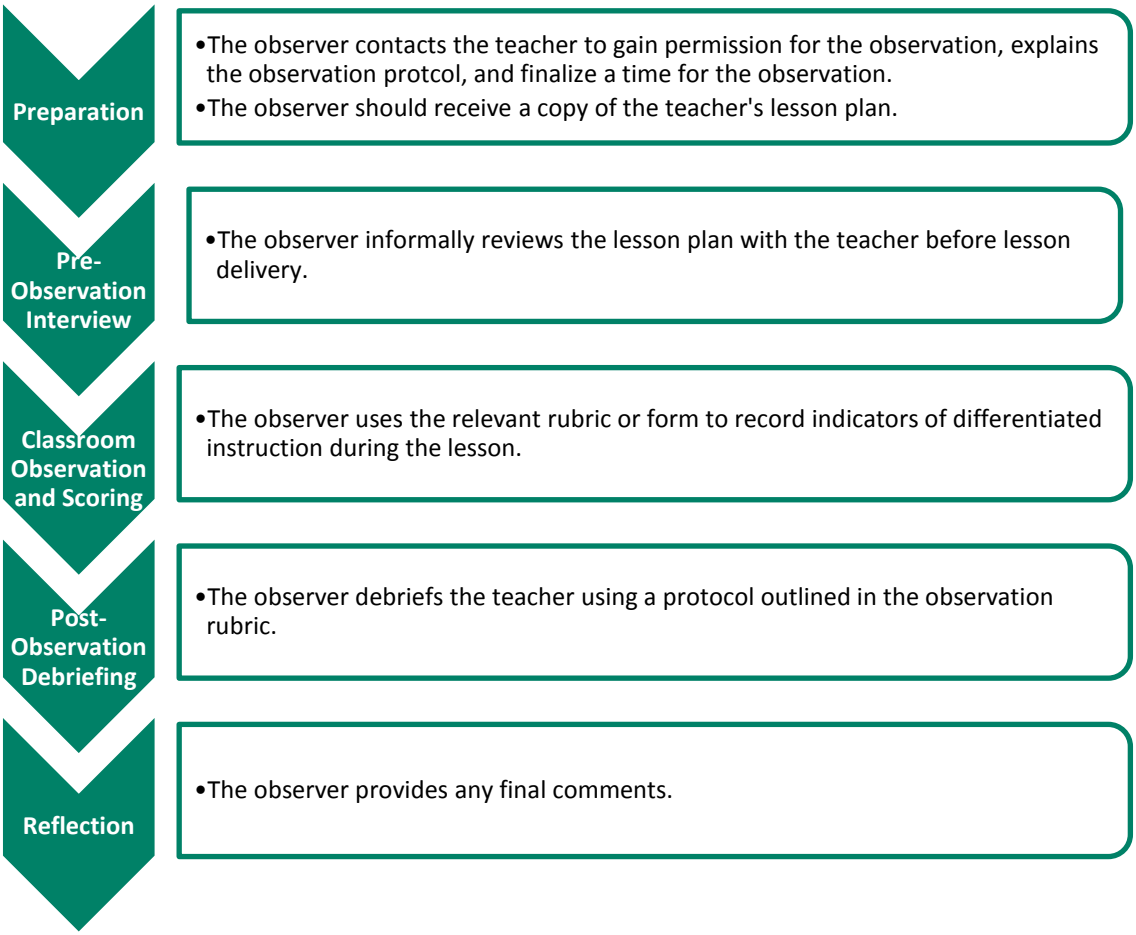
Some schools combine different professional development methods to support collaboration. For example, a school described in a 2011 conference presentation to the American Educational Research Association (AERA) used a professional development model that combined individual coaching with professional learning communities (PLCs). This school used PLCs meeting semi-monthly to support collaborative reflection, with instructional coaching to provide individual support.[55] Based on observations and interviews with three participants, the study finds that collaborative professional development drove changes to assessment and instruction and helped teachers differentiate content.[56]

Administrators and instructional coaches can use classroom observations to monitor teachers' implementation of differentiated instruction and suggest strategies that teachers can use to improve differentiation. Teachers can also use observation rubrics to monitor and develop their differentiation practices.[57] Several organizations have developed proprietary observation forms or rubrics which are available for districts to purchase.[58] Districts can also independently develop forms that align with local or state instructional standards.[59] The

[52] Murphy, Savath, and Miccio, Op. cit., p. III.
[53] *Teachers Know Best: Teachers' Views on Professional Development*. Bill & Melinda Gates Foundation, 2014. p. 8. https://eric.ed.gov/?q=differentiated+instruction+professional+development&ft=on&ff1=dtySince_2014&pg=2&id=ED576976
[54] Chart contents taken directly from: Ibid.
[55] Grierson, A.L. "Walking the Talk: Supporting Teachers' Growth with Differentiated Professional Learning." Paper Presented at the Annual Meeting of the American Educational Research Association, April 8, 2011. p. 11. https://eric.ed.gov/?q=differentiated+instruction+professional+development&ft=on&id=ED520373
[56] Ibid., pp. 13–14.
[57] "The Differentiated Classroom Observation Form." National Staff Development Council, March 2006. p. 1. https://learningforward.org/docs/leading-teacher/march06_tool.pdf?sfvrsn=2
[58] Tomlinson, C.A. and J. Hockett. "Look-Fors in an Effectively Differentiated Classroom." Learning Sciences International. http://www.caroltomlinson.com/Presentations/London_DI_LookFors.pdf
[59] "Differentiated Instruction: Look Fors in the Classroom." Liberty County School System. http://www.liberty.k12.ga.us/pdf/TandL/Differentiated%20Instruction%20Look%20Fors.pdf

National Association for Gifted Children (NAGC) recommends the process shown in Figure 1.10 below.

Figure 1.10: Recommended Classroom Observation Process



Source: National Association for Gifted Children[60]

TECHNOLOGY RESOURCES

Administrators should also prioritize budgeting for digital resources and technology training for faculty and staff. Technological resources allow teachers to differentiate materials, lessons, and instruction using video and audio formats.[61] Technology resources may be particularly useful for differentiating instruction to support students with learning disabilities or special needs.[62] Teachers may need to consult or work with technology specialists to design

[60] Chart contents adapted from: "Assessing Differentiation Protocol - Revised." National Association for Gifted Children. p. 1. http://www.nagc.org/sites/default/files/administrators/Assessing%20Differentiation%20Protocol.pdf

[61] Morgan, H. "Maximizing Student Success with Differentiated Learning." *Clearing House*, 87:1, January 2014. p. 37. https://www.researchgate.net/file.PostFileLoader.html?id=573fde7ded99e1bc557818ff&assetKey=AS%3A364032491048960%401463803517053

[62] Mahoney, J. and C. Hall. "Using Technology to Differentiate and Accommodate Students with Disabilities." *E-Learning and Digital Media*, 14:5, September 1, 2017. p. 293. https://doi.org/10.1177/2042753017751517

and implement projects that require students' use of media resources.[63] To identify technology resources that support differentiation, a 2014 article in the professional publication *ASCD Express* recommends the process outlined in Figure 1.11.

Figure 1.11: Process for Identifying Technology Resources to Support Differentiation

Source: ASCD Express[64]

[63] Morgan, Op. cit., p. 37.

[64] Chart contents adapted from: Sota, M. et al. "Identifying Technology to Support Differentiation." *ASCD Express*, 9:18, June 5, 2014. pp. 1–2. https://eric.ed.gov/?q=technology+differentiated+instruction&ft=on&ff1=dtySince_2014&id=ED577451

SECTION II: MULTI-TIERED SYSTEMS OF SUPPORT

In this section, Hanover Research discusses the use of a multi-tiered system of support (MTSS) framework to support differentiated instruction. The National Center on Intensive Intervention (NCII) defines a multi-tiered system of support as "a prevention framework that organizes building-level resources to address each individual student's academic and/or behavioral needs within intervention tiers that vary in intensity."[65] MTSS frameworks focusing on academic outcomes are often referred to as response to intervention (RTI), while MTSS frameworks focusing on behavioral outcomes are often referred to as positive behavioral interventions and supports (PBIS).

This section begins with a general overview of the MTSS framework, before discussing essential elements of MTSS. This section goes on to discuss administrative strategies to support the MTSS framework at the school and district level.

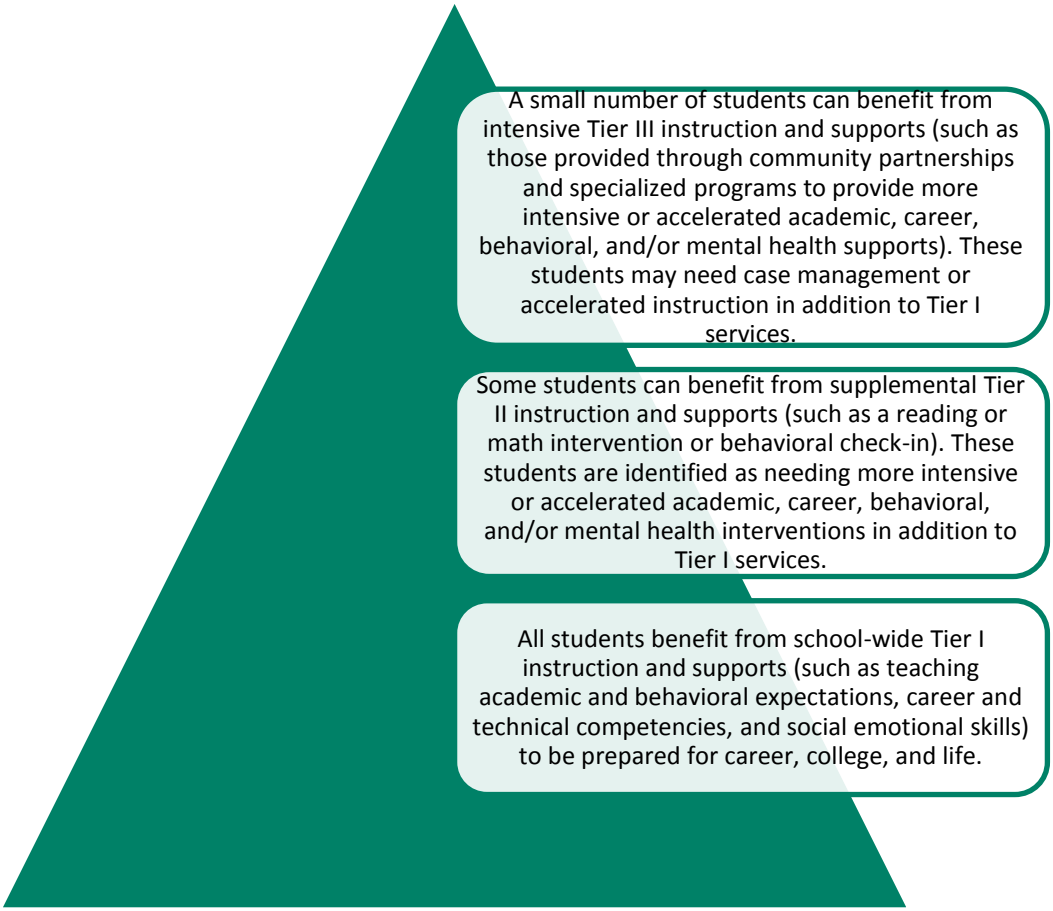
OVERVIEW

The Washington Office of Superintendent of Public Instruction (OSPI) defines MTSS as "an action framework that structures service delivery to assist staff and students to create a culture for learning."[66] Figure 2.1 on the following page shows the Washington OSPI's three-tiered framework for MTSS in both behavior and academic supports.

[65] "NCII Glossary of Terms." National Center on Intensive Intervention. https://www.intensiveintervention.org/ncii-glossary-terms#MTSS

[66] "MTSS Home." Washington Office of the Superintendent of Public Instruction. http://k12.wa.us/MTSS/default.aspx

Figure 2.1: Washington OSPI Framework for MTSS



Source: Washington Office of the Superintendent of Public Instruction[67]

The MTSS framework is distinct from differentiated instruction in that it focuses on providing more intensive instruction to students who do not respond to core instruction, rather than varying teaching strategies at the same level of intensity. MTSS encompass a wider range of supports than differentiation, including tutoring and pull-out supports.[68] However, schools can use differentiation to support effective instruction within Tier I of an MTSS framework.[69] The California Department of Education identifies differentiation as a core component of MTSS.[70] Likewise, the National Association of School Psychologists (NASP) endorses differentiated instruction as a component of an MTSS system for academic instruction.[71]

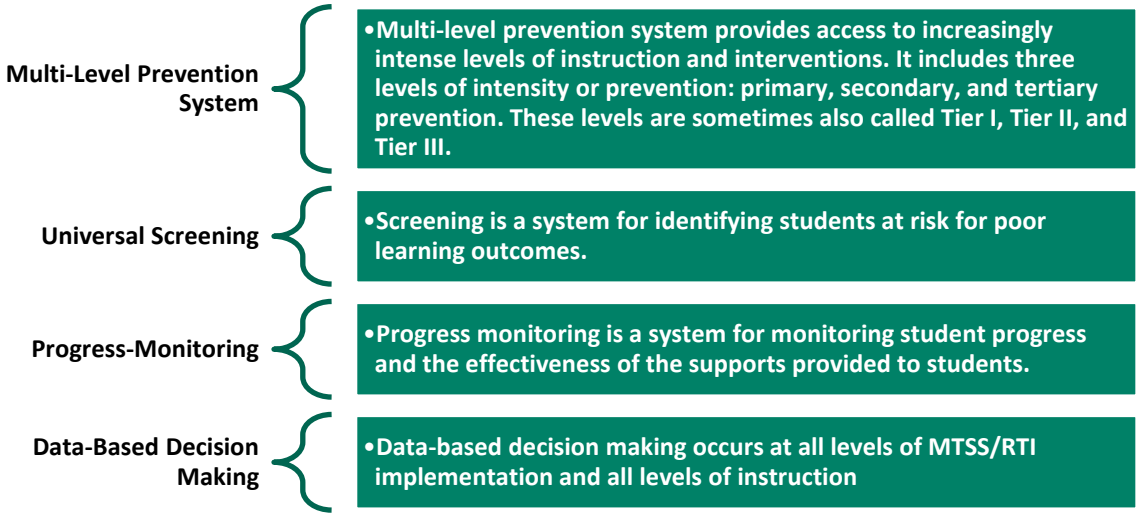
[67] Chart contents taken directly from: Ibid.
[68] "Essential Components of RTI – A Closer Look at Response to Intervention," Op. cit., p. 9.
[69] "MTSS Implementation Components Ensuring Common Language and Understanding." Florida's Multi-Tiered System of Supports. p. 4. http://www.florida-rti.org/educatorResources/MTSS_Book_ImplComp_012612.pdf
[70] "MTSS Core Component 1: Differentiated Instruction." California Department of Education. https://www.cde.ca.gov/ci/cr/ri/mtssdiffinstr.asp
[71] "NASP Position Statement: Integrated Model of Academic and Behavior Supports." National Association of School Psychologists, 2016. p. 2. https://www.nasponline.org/x36849.xml

Schools should ensure that Tier I instruction is effectively differentiated before referring students for Tier II or Tier III supports.[72] According to the OSPI, "differentiated instruction during core learning time is the first response for students who have not yet met academic and non-academic goals."[73]

ESSENTIAL ELEMENTS OF A MULTI-TIERED SYSTEM OF SUPPORTS

Several organizations have identified essential components of MTSS. Although organizations vary somewhat in their emphases, most lists of essential components include the use of data to support a problem-solving process. A 2015 report by the Center on Great Teachers and Leaders at American Institutes for Research (AIR) notes that MTSS requires "a continuum of resources that support the effectiveness of practitioners within a dynamic and collaborative problem-solving process." [74] The National Council on Response to Intervention (NCRTI) identifies the essential components of RTI and other MTSS frameworks shown in Figure 2.2.

Figure 2.2: NCRTI Essential Components of MTSS



Source: National Center on Response to Intervention[75]

UNIVERSAL SCREENING AND PROGRESS MONITORING

Universal screening allows teachers to examine the performance of all students in a classroom or school to identify individual students in need of interventions or a need for

[72] "Vermont Multi-Tiered System of Supports Response to Intervention and Instruction (MTSS-RtII) Field Guide." Vermont Reads Institute at the University of Vermont and Vermont Statewide Steering Committee on RTII, 2014. p. 4. http://vriuvmmtss.wpengine.com/wp-content/uploads/2014/06/MTSS-RtII-Field-Guide.pdf

[73] "Behavior Menu of Best Practices and Strategies." Washington Office of the Superintendent of Public Instruction, 2017. p. 11. http://www.k12.wa.us/SSEO/pubdocs/BehaviorMenu.pdf

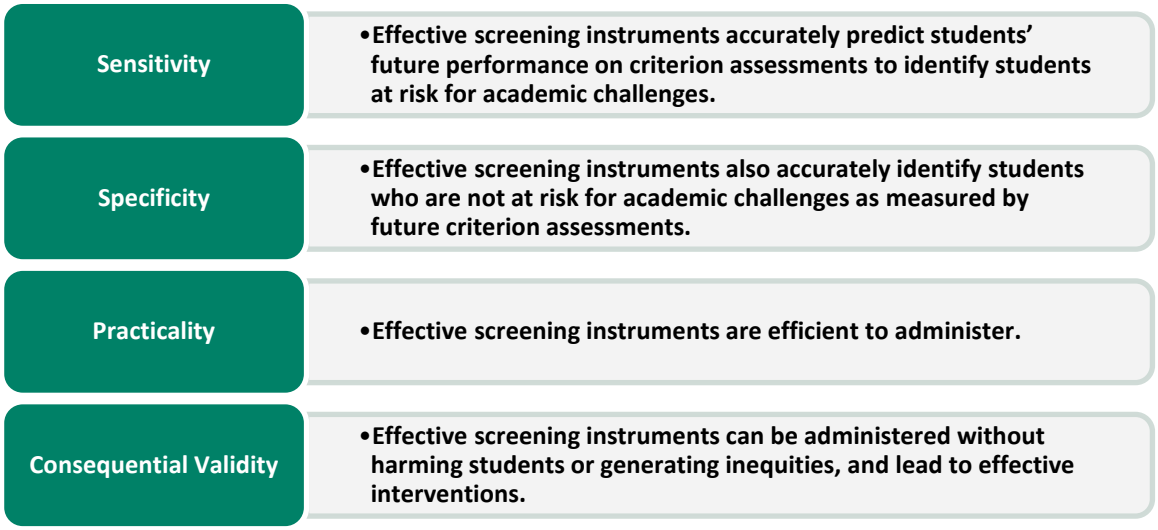
[74] Hayes, L. and J. Lillenstein. "A Framework for Coherence: College and Career Readiness Standards, Multi-Tiered System of Supports, and Educator Effectiveness." Center on Great Teachers and Leaders at American Institutes for Research, February 2015. p. 7. http://www.gtlcenter.org/sites/default/files/Multi-Tiered_Systems_of_Support.pdf

[75] Chart contents taken directly from: "Essential Components of RTI." National Center on Response to Intervention. http://www.rti4success.org/essential-components-rti

changes in the general instructional program. Classroom teachers compare individual students' scores on screening assessments to benchmarks for the entire class and to expected performance to identify a need for individual or whole-class interventions. Discrepancies between scores for individual students and the class average suggest a need for secondary or tertiary interventions. If many students perform at lower than expected levels, teachers should consider changes to the general instructional program.[76]

The NCRTI recommends a two-stage screening process in which schools administer an initial screening assessment to all students at the beginning of the school year and conduct follow-up assessments of students who score below a certain cut point. Schools can opt to conduct repeated screenings at two or three points during the school year.[77] According to the RTI Action Network, an initiative of the National Center for Learning Disabilities, effective universal screening instruments meet the criteria shown in Figure 2.3.

Figure 2.3: Criteria for Effective Universal Screening Instruments



Source: RTI Action Network[78]

Schools implementing MTSS also conduct progress-monitoring assessments of students referred to secondary or tertiary interventions. Teachers use progress-monitoring assessments to support the development of individual interventions for students referred to tertiary interventions. Schools can use progress monitoring to identify students with disabilities and inform decisions regarding general instruction.[79]

The Vermont field guide to MTSS recommends that schools integrate progress-monitoring and universal screening assessments into a comprehensive and balanced system of both

[76] "Teacher's Guide to Problem Solving Within the MTSS Framework," Op. cit., pp. 8–9.
[77] "Essential Components of RTI – A Closer Look at Response to Intervention," Op. cit., p. 5.
[78] Chart contents adapted from: Hughes, C. and D.D. Dexter. "Universal Screening Within a RTI Model." RTI Action Network. http://www.rtinetwork.org/learn/research/universal-screening-within-a-rti-model
[79] "Essential Components of RTI – A Closer Look at Response to Intervention," Op. cit., pp. 6–7.

formative and summative assessments.[80] Figure 2.4 shows assessment options for each assessment purpose within a balanced and comprehensive assessment system.

Figure 2.4: Elements of a Comprehensive and Balanced Assessment System

Assessment Purpose	Assessment Options
Screening	▪ Dedicated screening tool ▪ Formal review of existing progress-monitoring data ▪ On-going formative assessment data
Diagnostic	▪ Standardized diagnostic assessment tools ▪ Closer and more detailed analysis of existing progress monitoring data ▪ Additional measures/data to get a more comprehensive picture ▪ Observations, interviews, and work samples
Progress Monitoring: Formative	▪ Any data that shows teachers what has been learned and what needs to be addressed through instruction ▪ Student engagement in the process is pivotal
Progress Monitoring: Periodic Benchmarking	▪ On-going formative progress monitoring data ▪ Interim/periodic benchmark assessments ▪ Standardized outcome measures
Outcome or Summative	▪ Standardized test data to assess outcomes ▪ Benchmark progress monitoring data ▪ Formative assessment data demonstrating learning

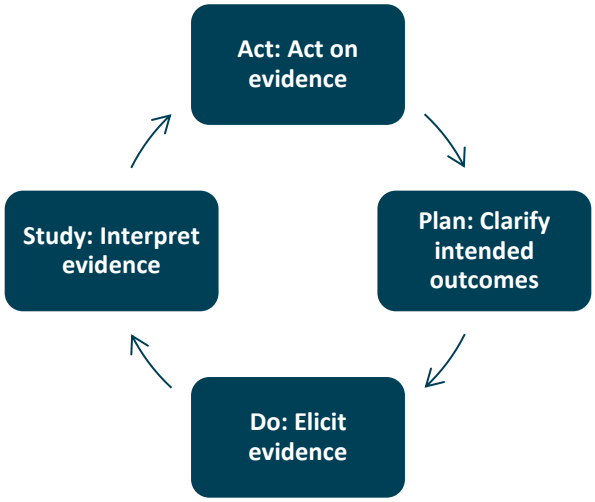
Source: Vermont Reads Institute at the University of Vermont and Vermont Statewide Steering Committee on RTII[81]

Data-Based Decision-Making

Effective MTSS frameworks use a problem-solving process to identify appropriate interventions for individual students. According to a 2011 guide for teachers prepared by the Florida Department of Education, problem-solving strategies ensure that instructional decisions reflect an equal focus on the student, the curriculum, and the classroom environment.[82] The Washington OSPI recommends using the Plan-Do-Study-Act (PDSA) process shown in Figure 2.5.

[80] "Vermont Multi-Tiered System of Supports Response to Intervention and Instruction (MTSS-RtII) Field Guide," Op. cit., p. 27.
[81] Chart taken with very minor alterations from: Ibid., pp. 28–29.
[82] "Teacher's Guide to Problem-solving Within the MTSS Framework," Op. cit., p. 5.

Figure 2.5: PDSA Cycle



Source: Washington Office of the Superintendent of Public Instruction[83]

[83] Chart contents taken directly from: "MTSS Home," Op. cit.

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