

Understanding Intervention:

Overview of Tiered Intervention in Schools

Produced by the Technical Assistance Partnership (TAP) for Academics, University at Albany, State University of New York



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Introductions

- Name
- Role
- District
- School
- Population Served

Learning Objectives

Participants will:

- understand the elements and practices of each tier of intervention.
- become familiar with distinguishing features of intensive instruction and intervention.
- o understand the use of the Instructional Hierarchy for planning intervention.
- learn about the Taxonomy of Intervention and its application to intervention.

Blueprint for Improved Results for Students with Disabilities



Self-Advocacy

Students engage in self-advocacy and are involved in determining their own educational goals and plan.



Family Partnership

Parents, and other family members, are engaged as meaningful partners in the special education process and the education of their child.



Specially-Designed Instruction

Teachers design, provide, and assess the effectiveness of specially-designed instruction to provide students with disabilities with access to participate and progress in the general education curriculum.



Research-Based Instruction

Teachers provide research-based instructional teaching and learning strategies and supports for students with disabilities.



Multi-tiered Support

Schools provide multi-tiered systems of behavioral and academic support.



Inclusive Activities

Schools provide high-quality inclusive programs and activities.



Transition Support

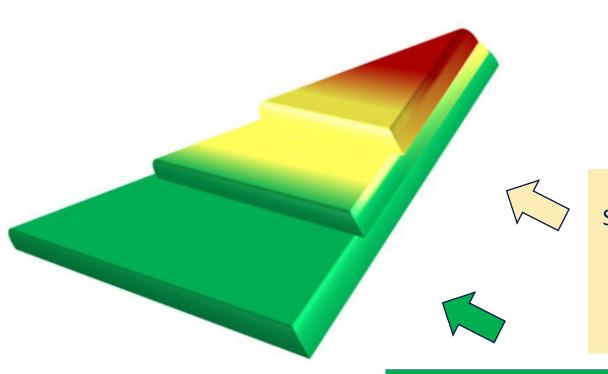
Schools provide appropriate instruction for students with disabilities in career development and opportunities to participate in work-based learning.

Tiered Intervention



The Multi-Tiered System of Supports (MTSS) Framework

Layering Support in MTSS



Tier III:

Individualized systems for students showing a significant academic skill deficit

- Individual students
- Assessment-based
- Intense, durable procedures

Tier II:

Specialized group systems for students showing a deficit in an academic area (e.g., literacy; math)

- High efficiency
- Rapid response
- Small group interventions

Tier I: Universal, Core Instruction for all students

- All settings, all students
- Preventative, proactive

- McIntosh & Goodman (2016)

Students with Disabilities Participate in MTSS

- Tiered systems of support can improve special education services by:
 - Enhancing referral and placement decisions.
 - Decreasing disproportionality.
 - Reducing length of needed special education services.
 - Improving academic progress.
- Special education provides another layer of services on top of those received in tiered intervention.
 - Example: A student receives specially designed instruction (SDI) through their Individualized Education Program (IEP) for math computation while also participating in Tier 2 reading intervention.
- SDI should be used to improve student access to intervention.
 - Example: A student receives SDI through their IEP to support their access to a Tier 3 math fluency intervention.

Universal Support for All Students

Tier 1 Research-Based Core Instruction



- Source: lepta.org
- https://www.youtube.com/watch?v=g5zOZ fLvSA&t=3s

Evidenced-Based Core Instruction

Tier 1

- We begin MTSS implementation at Tier 1 because:
 - Most students, including students with disabilities, spend much of their instructional time in Tier 1.
 - High-quality Tier 1 practices serve as both instruction and prevention.
 - o It anchors more intensive intervention.
 - It aligns core concepts and lessons across classrooms and grades.



Tier 2 Instruction & Interventions

Targeted Support for Students



- Source: lepta.org
- https://youtu.be/SPX npkx8ll?si=X-b DjM3avYfJNT9

Targeted Supports

Tier 2 Interventions

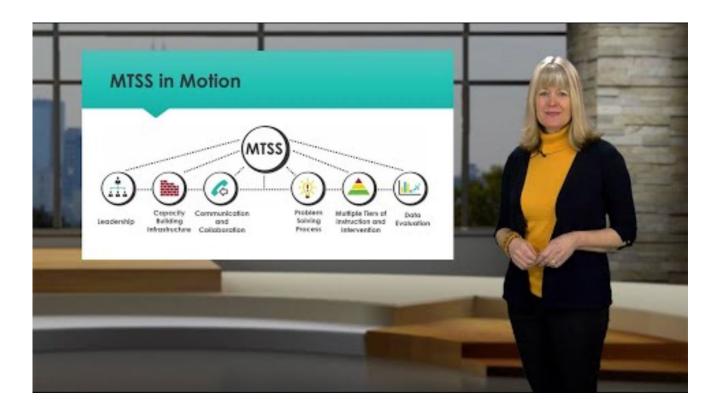


- Students identified as at-risk for academic skill deficits receive targeted Tier 2 interventions.
- Tier 2 interventions should be:
 - Evidence-Based
 - Standardized
 - Aligned with Instructional Needs
- Tiers 2 interventions are delivered as designed with fidelity.

- NCII, 2013

Tier 3 Instruction & Interventions

Intensified and Individualized Interventions



- Source: iepta.org
- https://youtu.be/SPX npkx8ll?si=X-b DjM3avYfJNT9

Intensified and Individualized Interventions

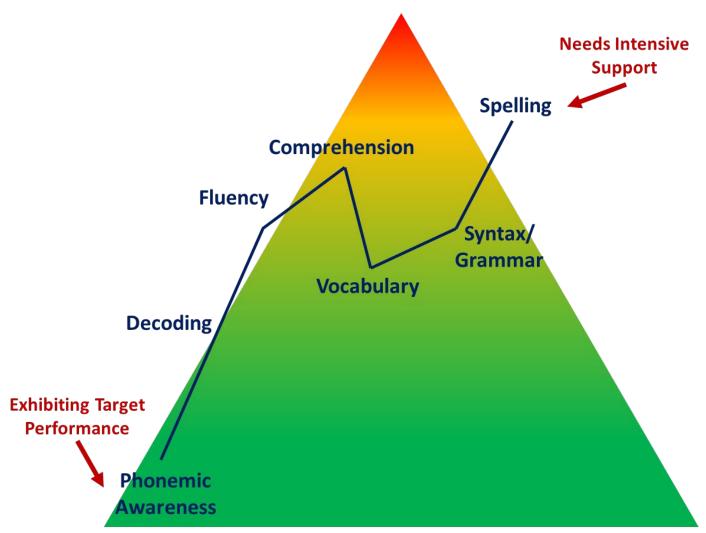
Tier 3 Interventions

- Intended for students with persistent and severe learning problems.
- Students receiving intensified interventions include:
 - Students in a tiered intervention program who have not responded to evidencebased secondary intervention or standardized remediation programs.
 - Students with very low academic achievement and/or severe behavior problems who are not making adequate progress in their current intervention program.
 - Students with disabilities who are consistently not making adequate progress meeting their IEP goals.
- Tier 2 intervention platforms can serve as starting point for intensification.

- NCII, 2013

Matching MTSS to Student Needs

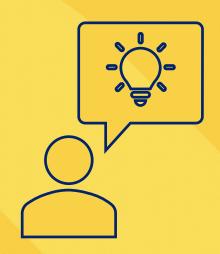
Instructional Support for an Individual Student





Tiered Intervention

Stop & Think



What are the distinguishing characteristics of the different tiers in MTSS?

Defining Intervention



Defining Intervention

Intervention is the **purposeful** and **selective** intensification of core features of instruction for an individual or group of students beyond what is typically delivered to all.



Intervention = Instruction

The Learning Rate



- All students learn all the time.
- The concern is that they aren't learning fast enough to keep up with expectations.
- The goal of intervention is to accelerate the learning rate.

- Skinner et al., 1996; Skinner et al., 2023 **19**

Fluency as Our Guide

- When identifying and applying an intervention, the primary goal is to build *skill fluency*.
 - Educators should teach students until they can engage in a behavior with automaticity (with ease).
- Educators need to prioritize measures and interventions that address skill fluency.

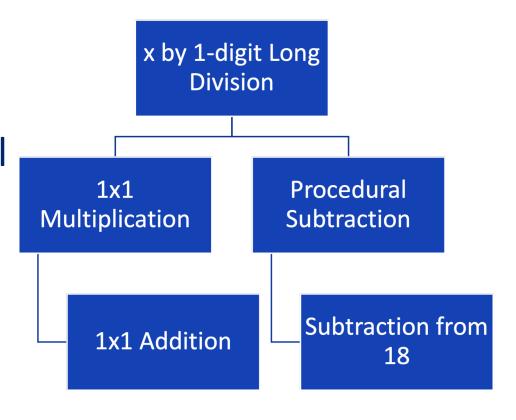
Why Fluency?

- Research shows that students retain and generalize information only after they achieve fluency.
- This means we must consider what is fluency for "big ticket" skills like reading and math proficiency.
 - O How do we observe and quantify it?
 - O Which fluent skills are needed to open the door to higher-order skills?



Fluency Example

- Fluency in long division will be capped by fluency in the subskills.
- Higher order skills (pre-algebra) will be capped by fluency in long division.
- Prerequisite skills should be effortless so students can focus cognitive resources on the instructional level task.



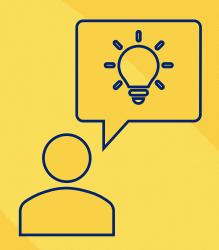
Examples of Fluency Goals

	Reading	Math	Basic Writing	Science & Social Studies	Advanced Writing
Goal	94 nonsense words correct in one minute	20 problems correct in one minute	32 correctly spelled words in 4 minutes	16 vocabulary matches correct in 5 minutes	correct – incorrect writing sequences (locally determined)
Source	Dynamic Indicators of Basic Early Literacy 3 rd grade spring Benchmark	Measures & Interventions for Numeracy Development Benchmark	Wright (2013)	Conoyer et al. (2019)	Keller-Margulis et al. (2021)



Fluency as Our Guide

Stop & Think



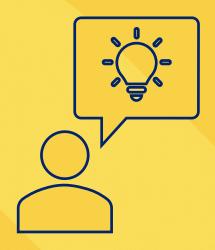
Why is it important that we have a fluency-based goal for each skill on which we are providing intervention?

Instructional Hierarchy





Stop & Think

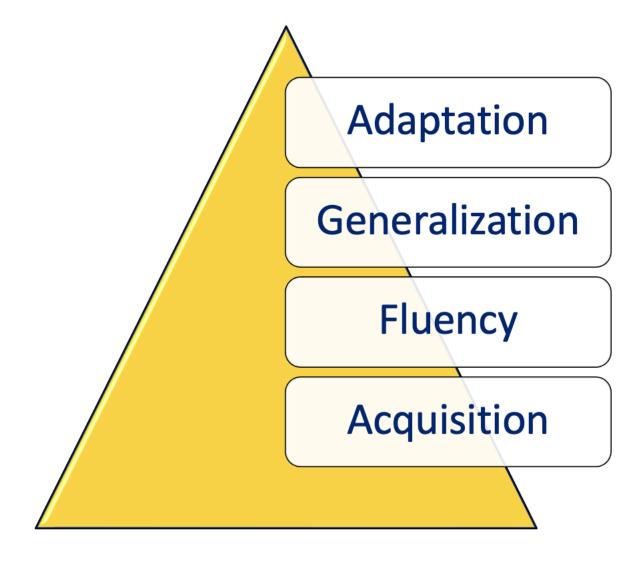


Targeting Intervention Considerations

Have you contemplated these questions when first considering appropriate interventions:

- Is the intervention addressing the missing skill(s) necessary to reach proficiency given current instructional goals?
- What stage of learning is this student at with this skill? (Instructional Hierarchy)

The Instructional Hierarchy



Haring & Eaton, 1978

Acquisition Stage

Skill Level Description:

The first stage of learning a new skill.

The learner comes in with virtually no fluency or very low fluency.

The goal is to teach to accuracy and nominal levels of fluency.



- Microsoft 365 Stock Image 28

Acquisition Stage

Instructional Practices

- Programs designed for learners at the acquisitional level should have high levels of:
 - Explicit Instruction
 - Modeling and Demonstration
 - Feedback
 - Opportunities to Respond



Acquisition Stage



Cover-Copy Compare

Acquisition Stage

5 + 6 11	6 + 2 8	
2 + 2 4	5 + 4 9	

Acquisition Stage

How do we know someone needs acquisitional level instruction?

 Look at the thresholds on your screening and/or diagnostic data that indicate very low percentile or very low performance, such as "frustration," "acquisitional," or in need of "intensive support."

• Examples:

- 20 digits correct per minute or less on math Curriculum-Based Measurement (CBM)
- 10th percentile or less on a reading CBM





Acquisition Student Example

Second Grade Fall Literacy Screening								
	Reading CBM	Nonsense Word Fluency	Oral Reading Fluency Accuracy	Retell				
Score	25 Words Correct	30 Correct Letter Sequences 5 Words Read Correct	57%	2 Correct				
Benchmark	Well Below Benchmark	Well Below Benchmark	Well Below Benchmark	Well Below Benchmark				

Fluency Stage

Skill Level Description:

The learner has low to moderate fluency.

They've received some instruction and have basic knowledge of the skill.



Fluency Stage

Instructional Practices

- Interventions designed for learners at the fluency level (or instructional) level should have high levels of:
 - Feedback
 - Opportunities to Respond
 - Timed Practice



- Microsoft 365 Stock Image 35

Fluency Stage



Fluency Stage:

Repeated Readings Intervention

Repeated Readings Intervention

Skills Targeted: Reading Fluency (Primary) and Reading Comprehension (Secondary)

Repeated Readings is especially helpful for readers who demonstrate adequate oral reading accuracy, but their reading rate is slower in comparison to peers (e.g., at or lower than the 20th percentile on tri-annual CBM screening).



Reading fluency is an important factor in students developing proficient reading comprehension.

Before Starting: Teachers should collect and review student performance data from the administration of CBM probes before implementing Repeated Readings.

To determine if Repeated Readings may be beneficial for a student, the teacher should examine baseline scores on Oral Reading Fluency (ORF) CBM probes¹.

- If a student reads words correctly but slowly, this intervention may be appropriate to implement.
 - O Example: The Words Read Correct (WRC) per minute scores listed on the table to the right are expected for students in the corresponding grades for a common CBM vendor, DIBELS². If your student's WRC is below this score in the middle of their school year, this intervention may be appropriate.
- If a student has low reading accuracy or reads very slowly, the teacher should consider and assess the student's word decoding skills to determine if a phonics focused intervention is more appropriate.

Grade	WRC
1	10
2	59
3	85
4	98
5	108
6	117
7	121
8	116

Note: Always use the percentiles and benchmarks from the vendor of your school's CBM materials.

¹ See materials from the Partnership's "Best Practices in Screening for Academic Deficits" and "Best Practices in Progress Monitoring" Professional Development packages for further information.

² Benchmarks for grades during different times of the year (beginning, middle, end) can be found here: https://dibels.uoregon.edu/docs/DIBELS8thEditionGoals.pdf

Fluency Stage

How do we know someone needs fluency level instruction?

- Benchmarks for "intensive support" or "high risk."
- Examples:
 - Between 20 and 40 digits correct per minute on math CBM.
 - Between 10th and 25th percentile on a reading CBM.



- Microsoft 365 Stock Image 38



Fluency Student Example

Second Grade Fall Literacy Screening						
Reading Nonsense Word Oral Reading Retell CBM Fluency Fluency Accuracy						
Score	28 words correct	48 Correct Letter Sequences 12 Words Read Correct	85%	9 Correct		
Benchmark	Well Below Benchmark	Below Benchmark	Below Benchmark	Below Benchmark		

Generalization Stage

Skill Level Description:

The learner has high fluency and accuracy.

But can they use the skill in the spaces in which we expect them to?



· Microsoft 365 Stock Image

Generalization Stage

Instructional Practices

- Instruction designed for learners at the generalization level should:
 - Require Regular Use of Target Skill.
 - Use Multiple and Varied Examples.
 - Vary Non-Essential Aspects in Teaching and Practice.
 - Provide Opportunities to Apply Skills to Real World Situations.
 - Practice Discrimination Between Applying Similar Skills.



Generalization Stage

Fact Family Worksheet

<u>- 8</u>	10	<u>- 6</u>
8	6	9
9	<u>- 2</u>	17
	2	9

Generalization

How do we know someone is ready for generalization level instruction?

- Look to thresholds for average to high performance, such as "mastery."
- Examples:
 - Over 40 digits correct per minute on math CBM.
 - Over the 50th percentile on a reading CBM.



Generalization Student Example

Second Grade Fall Literacy Screening							
	Reading Nonsense Word Oral Reading Retell CBM Fluency Fluency Accuracy						
Score	65 Words Count	61 Correct Letter Sequences 17 Words Read Correct	94%	21 Correct			
Benchmark	At Benchmark	At Benchmark	At Benchmark	At Benchmark			

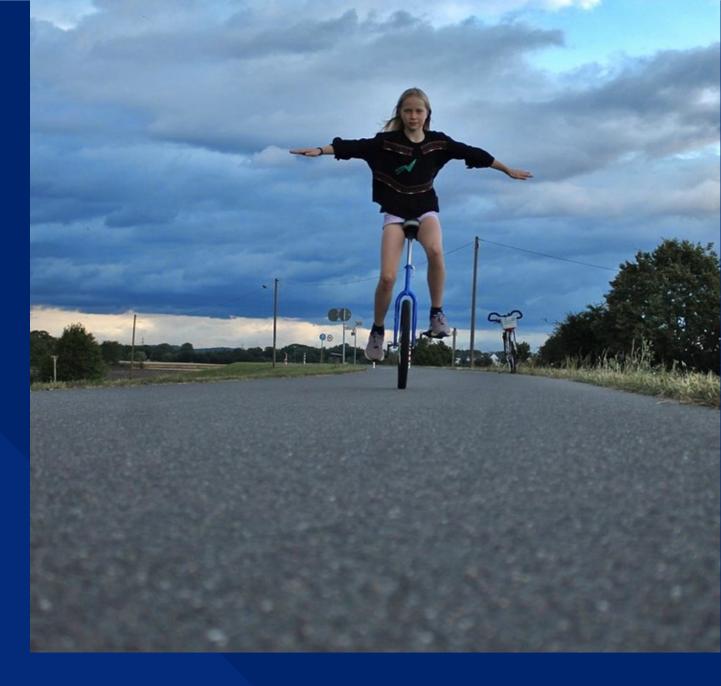
Adaptation Stage

Skill Level Description:

The learner can exhibit the fluent behavior in all target settings.

They can apply the skill effortlessly.

They are ready for the instructional boundaries to drop, and to explore new uses and innovations extended from the skill.



- Image by Markus Trier from Pixabay 4

Adaptation Stage



The Instructional Hierarchy

Adaptation

• The learner can exhibit the fluent behavior in all target settings. They are ready to explore new uses and innovations extended from the skill.

Generalization

 The learner has fluency and accuracy. The instruction should emphasize using the skill in different ways, in different spaces.

Fluency

 The learner is accurate, but slow or choppy. Teacher provides many opportunities for practice with feedback and reinforcement.

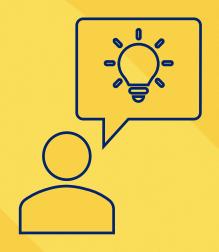
Acquisition

 The learner is beginning to learn the skill and not yet accurate.
 Teacher provides high levels of modeling and immediate feedback after practice.



Targeting Intervention

Stop & Think



Take a few minutes to reflect on the student examples in the participant packet.

With a partner discuss:

- The stage they are in on the Instructional Hierarchy.
- Instructional practices the teacher should use during that stage.
- A possible intervention to use with this student.
- Is the instructional hierarchy and skill-match considered when choosing interventions at your school?





Fourth Grade Fall Literacy Screening							
	Oral Reading Fluency – Words Correct	Fluency – Fluency - Retell Maze Accuracy					
Score	81	73%	15	10 Correct			
Benchmark	Below Benchmark	Well Below Benchmark	Below Benchmark	Below Benchmark			

- Reads quickly but makes many mistakes.
- Seems to accurately read words known by sight.
- Struggles to accurately read unknown words and often skips words that are challenging.
- Has difficulty fully comprehending text.

Student Example 8th Grade



Eighth Grade Fall Literacy Screening							
	Oral Reading — Correct Comprehension Questions Silent Reading Maze						
Score	342	98	23	17	58		
Benchmark	Well Below Benchmark	At Benchmark	Below Benchmark	Below Benchmark	Below Benchmark		

- Reads slowly and makes few mistakes.
- Takes time to correctly decode challenging or unknown words.
- Has difficulty fully comprehending text.

Abbott et al., 2020 50

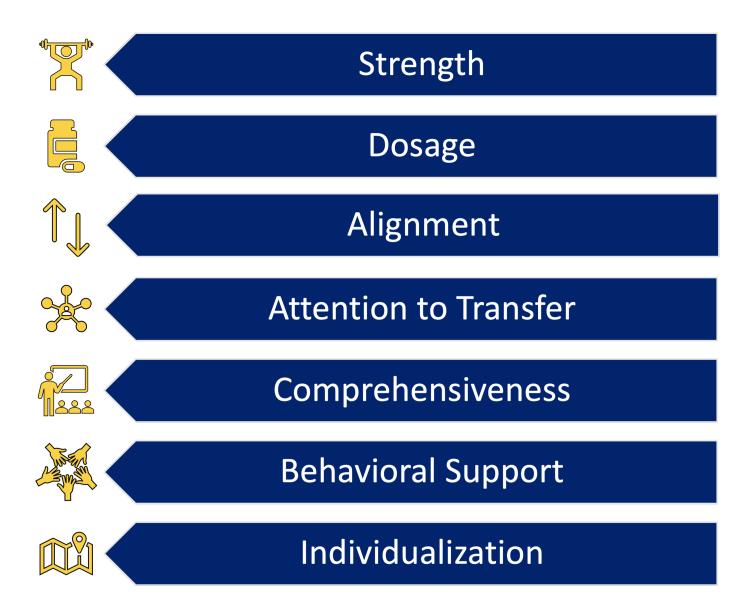
Taxonomy of Intervention Intensity

Intensifying Intervention

- Intensification is not simply using smaller groupings.
 - O What about "smaller" will make the intervention more "intense"?
 - The additional practice?
 - Ability to introduce a more diverse array of evidence-based instructional techniques?
 - Possibility for more corrective feedback?
 - Research on smaller/individualized groupings as an intervention modification shows mixed results.
- Intensifying an intervention platform requires understanding and applying all elements of intensification.

- Vaught et al., 2010 52

Taxonomy of Intervention Intensity



Taxonomy of Intervention Intensity for English Language Learners (ELLs)

- How do I use the Taxonomy of Intervention Intensity to support students who are English learners?
 - Develop content and language related skills simultaneously.
 - Evaluate current interventions being provided to ELLs.
 - Select a new intervention to meet the needs of ELLs.
 - Intensify the intervention.

Defining the Dimensions of the Taxonomy of Intervention Intensity and Considerations for English Learners (ELs)

Dimension*

Considerations for English Learners



Strength

How well the intervention works for students with intensive intervention needs (students below the 20th percentile), typically expressed in terms of

- . Look for this information on the NCII Tools Chart, What Works Clearinghouse, and/or Best Evidence Encyclopedia to determine if there is evidence that the program works with ELs.
 - Have there been separate studies for ELs?
 - · Are there disaggregated data on effect sizes for ELs within the larger study?



Dosage

The number of opportunities a student has to respond and receive corrective feedback. It refers to the size of the instructional group, the number of minutes each session lasts, and the number of sessions provided per week.

· Determine the appropriate dosage based on first and secondlanguage proficiency levels relative to students with similar language and cultural backgrounds



Alignment

How well the program (a) addresses the target student's full set of academic skill deficits. (b) does not address skills the target student has already mastered (extraneous skills for that student), and (c) incorporates a meaningful focus on grade-appropriate curricular standards.

- · Consider the extent to which the program takes into account the student's language qualities, strengths, and developmental needs aligned with the stages of language acquisition.
- · Provide scaffolds and strategies for language acquisition (e.g., key vocabulary, comprehension strategies, required wait time, background knowledge).
- · Teach to content as well as language objectives.



Attention to Transfer

The extent to which an intervention is designed to help students (a) transfer the skills they learn to other formats and contexts and (b) realize connections between mastered and related skills.

- . Examine the extent to which the intervention supports the transfer of the first-language supports to the acquisition of a second language.
- · Provide students with integrated learning experiences that facilitate the transfer of language skills across instructional
- · Provide translanguaging (i.e., use of first and second languages together) supports.



Comprehensiveness

The number of explicit instruction principles the intervention incorporates.

- · Build background knowledge.
- · Consider that learning differences may reflect culturally diverse norms and assets that reflect varied life experiences.
- · Deliver explicit language development and instruction while simultaneously implementing the intervention.
- · Scaffold to support academic language demands and expectations.
- · Facilitate understanding of authentic and connected



Behavior Support

Individualization

The extent to which the program incorporates selfregulation, executive function components, and behavioral principles to minimize nonproductive

A validated, data-based process for individualizing

· Provide behavior supports consistent with a learner's cultural norms.



intervention in which the educator systematically adjusts the intervention over time, in response to ongoing progress monitoring data, to address the student's complex learning needs.

 Select and implement instructional adjustments that reflect culturally and linguistically responsive practices teaching to content as well as language objectives.

^{*}Fuchs, L.S. Fuchs, D., & Malone, A.S. (2017). The Taxonomy of Intervention Intensity. TEACHING Exceptional Children, 50(1), 35-43,

Dimension One: Strength



- Strength refers to the expected amount of growth, given a certain amount of intervention.
- Strength can be reported as:
 - Differences in unstandardized outcomes.
 - Differences in standardized outcomes.



- Microsoft 365 Stock Image 55

Dimension One: Strength Examples



Examples of Unstandardized Outcomes

There was an average difference between the intervention and control condition of 25 points on the New York state test.

There was an average difference of 8 standard points on the Woodcock-Johnson Achievement test.

The student had a 15 words correct per minute improvement from their baseline.

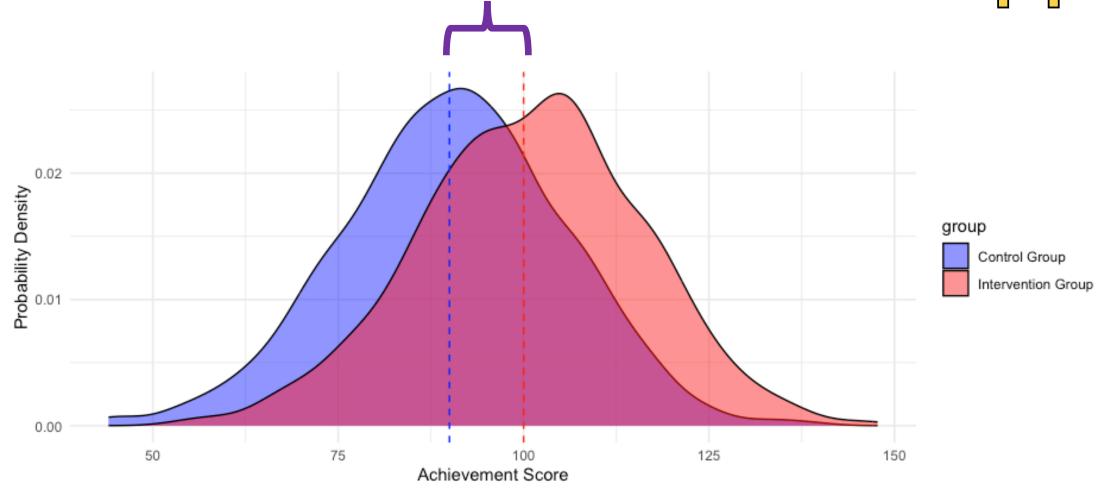
Examples of Effect Sizes

The **effect size** between the intervention and business-as-usual condition was .25.

There was a 18% improvement from baseline to post-test.

Core Features: Strength





- Kraft, 2020 **57**

Dimension One: Strength



Intervention Effect Sizes

Effect Size	Strength Indications
0.25	Intervention has a value in improving outcomes
0.35-0.40	Moderate
0.50 +	Large

- Fuchs et al., 2017 58

Dimension One: Strength



			Mean (standard deviation)		WWC calculations			
Outcome measure	Study Sample sample	Intervention group	Comparison group	Mean difference	Effect size	Improvement index	<i>p</i> -value	
Arvans, 2010 ^a								
Woodcock-Johnson III (WJ-III): Summary Scores	Grades 2–4	82 students	94.82 (9.85)	93.09 (11.17)	1.73	0.16	+6	> 0.05
Domain average for general	reading achi	evement (Arv	rans, 2010)			0.16	+6	Not statistically significant
Heistad, 2008 ^b								
Minnesota Comprehensive Assessment (MCA): Reading portion	Grade 3	44 students	1,363.18 (162.08)	1,331.36 (139.77)	31.82	0.21	+8	0.27
Northwest Achievement Levels Test (NALT): Reading portion	Grade 3	44 students	192.30 (10.51)	187.73 (10.18)	4.56	0.43	+17	0.02
Domain average for general	reading achi	evement (Hei	stad, 2008)			0.32	+13	Statistically significant
Domain average for general	reading achi	evement acro	ss all studies			0.24	+10	na

Dimension Two: Dosage



- Dosage the number of opportunities a student has to respond and receive corrective feedback
 - Grouping the size of the instructional group
 - Often measured as the number of students receiving intervention together.
 - O Dose the amount of intervention within a given session
 - Often measured as how many minutes an intervention is expected to take.
 - Frequency how often the intervention is administered
 - Often measured as how often an intervention is delivered in a typical week.

Core Features: Dosage



Example Program: ROOTS

ROOTS is an evidence-based small group Kindergarten math intervention program.

• In one article, the program is reported as occurring, "in 20-min small-group sessions (2:1 or 5:1) 5 days per week for approximately 10 weeks."

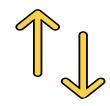
Example Program: Orton Gillingham

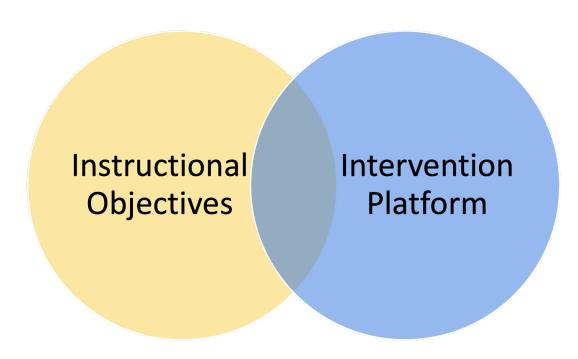
Orton Gillingham is a standardized intensive literacy intervention program.

- Their website (2023) states, "The most common instructional pattern... is the 1:1 model. This includes at least two independent sessions per week, each with a duration of 40-60 minutes on non-consecutive days."
- A recent meta-analysis reported implementation varying from 11.7 to 90 total hours.

- Clark et al., 2019; Stevens et al., 2021

Core Features: Alignment



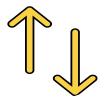


 Alignment refers to how well an intervention platform overlaps with the instructional objectives and content taught in tier 1.

 A platform may have strong alignment in one school, but poor alignment in another.

- Skinner et al., 1993 62

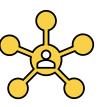
Core Features: Alignment



Example Program:

- The ABC school uses Houghton Mifflin *Into Reading* as their tier 1 curriculum.
 - This program emphasizes explicit instruction in phonics and phonemic awareness.
 - Because of this, an appropriately aligned intervention for struggling students in earlier grades may be **Elkonin Boxes**.

Dimension Four: Attention to Transfer



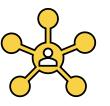
- Attention to Transfer:
 - how well an intervention supports the use of newly learned skills in other contexts and formats.
 - Includes recognizing connections between mastered and related skills.

- Inclusion of explicit transfer instruction:
 - Offers greater intervention intensity.
 - Results in improved learning outcomes for struggling learners.



- Fuchs et al., 2017; Microsoft 365 Stock Image

Dimension Four: Attention to Transfer



• Explicit Transfer Instruction:

- Teach how to identify occasions in other settings to apply skills learned in intervention.
- Provide practice in applying skills to similar, but unfamiliar, formats.

If Explicit Transfer Instruction is absent:

- Incorporate explicit transfer instruction prior to starting intervention.
- Use explicit transfer instruction as a means of intensifying the intervention.

- Fuchs et al., 2017 65

Dimension Five - Comprehensiveness Defining Explicit Instruction

"Explicit instruction is a group of research-supported instructional behaviors used to design and deliver instruction that provides needed supports for successful learning through clarity of language and purpose, and reduction of cognitive load. It promotes active student engagement by requiring frequent and varied responses followed by appropriate affirmative and corrective feedback, and assists long-term retention through use of purposeful practice strategies."

- Hughes et al. (2017) 66

Core Features: Comprehensiveness (Explicit Instruction)



- Observable features of explicit instruction include:
 - High opportunities to respond
 - Fade response prompts
 - Segment complex skills into discrete skills
 - Promote feedback
 - Focus attention to key skills

- Hughes et al. (2017) 67

Core Features: Comprehensiveness (Explicit Instruction)



- Example Program:
 - Peer-Assisted Learning Strategies (PALS)

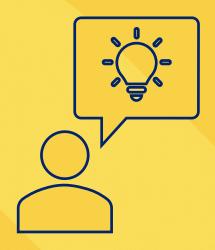
High opportunities to respond	Fading response prompts	Segmentation of complex skills	Promote feedback	Attention to key skills
Peer tutoring system means all students are practicing all the time.	Individual lessons move from teacher-moderated sound-by-sound pronunciation to say it, move it practicing blends with those sounds.	PALS breaks down reading fluency into 10 lessons focusing on different evidence-based aspects of literacy.	The peer tutoring system promotes immediate feedback on student responses.	The program focuses on reading fluency.

- Fuchs et al., 2000 68





Stop & Think



- What are the observable features of explicit instruction?
- What are some ways in which they might be intensified during intervention?

Dimension Six: Behavioral Support



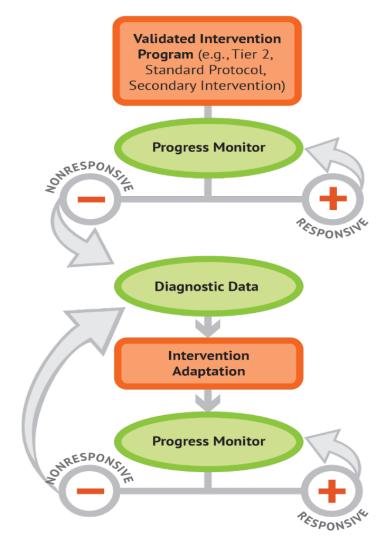
- Behavioral Support:
 - Teaching skills to improve self-regulation and academic engagement
 - Incorporating behavioral principles to reduce nonproductive and disruptive behaviors
- Students with academic difficulties often face other learning barriers including:
 - Attention and Engagement
 - Self-Regulation
 - Noncompliant Behaviors

- Fuchs et al., 2017 70

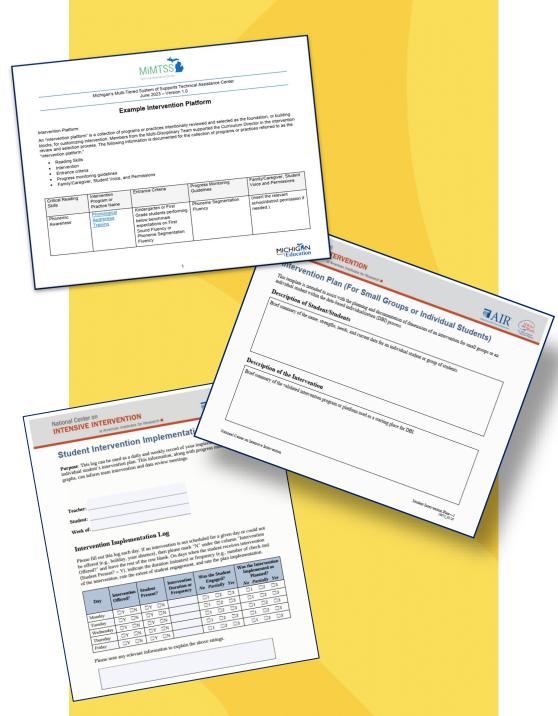
Dimension Seven: Individualization



- Individualization:
 - Using a validated, data-based process to adjust an intervention to meet a student's individual learning needs.
- Individualization is used to ensure that students are:
 - Responding to intervention.
 - Demonstrating expected learning growth.
- Data-Based Individualization is a validated framework for individualizing and intensifying interventions.



- Fuchs et al., 2017; NCII, 2013 71



Guided Resource Review



Review the resources below using the guiding questions in your participant packet.

- 1. Intervention Platform
- 2. Intervention Plan (For Small Groups or Individual Students)
- 3. Student Intervention Implementation Log

Final Thoughts and Questions



Contact Us









Meeting Evaluation Survey

Meeting Evaluation Survey

Meeting Evaluation Survey

Link here