Connecticut Assessment Forum
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Assessment to Inform Instruction and Intervention within an RTI/SRBI Framework

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The Achievement Gap

Successful Readers

Struggling Readers

Grade 1
Grade 2
Grade 3
The Achievement Gap

What research tells us about the achievement gap in reading:

- The achievement gap emerges early
- The achievement gap grows more discrepant over time
- The achievement gap is stubbornly resistant to change
- The achievement gap is evident across all areas of literacy
### The Grade 4 Reading Achievement Gap

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Size of gap in scale score points</th>
<th>States with smaller gap</th>
<th>States with same gap</th>
<th>States with larger gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lunch Status</td>
<td>37.9</td>
<td>48</td>
<td>1</td>
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</table>
Tier 1: Comprehensive & Coordinated Instruction for All Students

Tier 2: Supplemental Intervention for Students Performing Below Grade Level

Tier 3: Specialized, Individualized Intervention for Students with Intensive Needs

~80% of Students

~15%

~5%
SRBI: Critical Components

- Comprehensive & coordinated *classroom instruction* for all students. The effectiveness of classroom instruction is evaluated through *universal assessments*.

- *Universal assessments* are also used to identify students who require additional intervention

- *Supplemental intervention* and ongoing *progress monitoring* for students at risk for performing below grade level

- *Intensified intervention* support for students who do not respond to core instruction and targeted intervention
Evaluation/Outcome - Assessments that provide a bottom-line evaluation of the effectiveness of a school’s instruction.

Benchmarking/Screening - Assessments that are administered to all students to determine the effectiveness of school-wide instruction/ intervention as well as which children are at risk for difficulty and who will need additional intervention.

Diagnosis - Assessments that help teachers plan instruction by providing in-depth information about students’ skills and instructional needs.

Progress Monitoring - Assessments that determine if instruction or intervention is enabling students to make adequate progress.
“Weighing cows won’t make ‘em fatter.”

Assessment data must:

- Answer important questions
- Enable informed instructional decision making
Outcome assessments provide a bottom-line evaluation of the effectiveness of the overall instructional program.

- Administered to all children
- Must meet very high standards for reliability and validity.
- Often serve as an external accountability system and have high stakes implications for students and schools.
## Evaluation/Outcome

### Mathematics

<table>
<thead>
<tr>
<th>Group</th>
<th>Year</th>
<th>Total Mathematics % At/Above Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>District A</td>
<td>2007</td>
<td>70%</td>
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<tr>
<td>District B</td>
<td>2007</td>
<td>60%</td>
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</table>

### Reading

<table>
<thead>
<tr>
<th>Group</th>
<th>Year</th>
<th>Total Reading % At/Above Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>District A</td>
<td>2007</td>
<td>80%</td>
</tr>
<tr>
<td>District B</td>
<td>2007</td>
<td>40%</td>
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</table>

### Writing

<table>
<thead>
<tr>
<th>Group</th>
<th>Year</th>
<th>Total Writing % At/Above Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>District A</td>
<td>2007</td>
<td>78%</td>
</tr>
<tr>
<td>District B</td>
<td>2007</td>
<td>52%</td>
</tr>
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</table>

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### Grade 3 Reading for DRG F

<table>
<thead>
<tr>
<th>District</th>
<th>Year</th>
<th>Below Basic</th>
<th>Basic</th>
<th>Proficient</th>
<th>Goal</th>
<th>Advanced</th>
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<tbody>
<tr>
<td>District A</td>
<td>2007</td>
<td>5%</td>
<td>5%</td>
<td>15%</td>
<td>50%</td>
<td>30%</td>
</tr>
<tr>
<td>District B</td>
<td>2007</td>
<td>25%</td>
<td>20%</td>
<td>15%</td>
<td>30%</td>
<td>10%</td>
</tr>
</tbody>
</table>
Students Meeting Grade Level Reading Goals: Low risk

~40% of Students

~35%

Students Performing Below Grade Level Reading Goals: At Risk

~25%

Students Performing Significantly Below Grade Level Reading Goals: High Risk
Purposes for Assessment

**Evaluation/Outcome** - Assessments that provide a bottom-line evaluation of the effectiveness of a school’s instruction.

**Benchmarking/Screening** - Assessments that are administered to all students to determine the effectiveness of school-wide instruction/ intervention as well as which children are at risk for difficulty and who will need additional intervention.

**Diagnosis** - Assessments that help teachers plan instruction by providing in-depth information about students’ skills and instructional needs.

**Progress Monitoring** - Assessments that determine if instruction or intervention is enabling students to make adequate progress.
Assessments used as benchmarks are administered multiple times per year to all students to determine the effectiveness of school-wide instruction/intervention.

- Time efficient (may or may not provide diagnostic information)
- Predictive power/utility is critical
- Organized and coordinated at school building level
Benchmark

End of Year Reading Outcomes

Oral Reading Fluency

- 28% Low Risk
- 57% Some Risk
- 15% At Risk

Number of children

0 - 4
5 - 9
10 - 14
15 - 19
20 - 24
25 - 29
30 - 34
35 - 39
40 - 44
45 - 49
50 - 54
55 - 59
60 - 64
65 - 69
70 - 74
75 +
Students Performing Below Grade Level Reading Goals: At Risk

Students Meeting Grade Level Reading Goals: Low risk

Students Performing Significantly Below Grade Level Reading Goals: High Risk

~28% of Students

~57%

~15%
Tier 1: Comprehensive & Coordinated Instruction for All Students

Tier 2: Supplemental Intervention for Students Performing Below Grade Level

Tier 3: Specialized, Individualized Intervention for Students with Intensive Needs

~80% of Students

~15%

~5%
Assessments used as screeners are administered multiple times per year to all students to determine quickly which children are at risk for reading difficulty and need additional intervention/support.

- Time efficient (may or may not provide diagnostic information)
- Predictive power/utility is critical
- Organized and coordinated at school building level
- Need fail safe gating procedures
Questions

- Which students are at risk for experiencing academic or behavioral difficulties now and in the future?
- Which students will need additional intervention to meet grade level expectations?

Instructional Implications

- Provide intensive and timely intervention to students who are identified as at risk for academic or behavioral difficulties.
Screening

Tier 1: Comprehensive & Coordinated Instruction for All Students

~80% of Students

~15%

~5%

Tier 2: Supplemental Intervention for Students Performing Below Grade Level

Tier 3: Specialized, Individualized Intervention for Students with Intensive Needs
Tier 2: Supplemental Intervention
Project VITAL: Vocabulary Intervention Targeting At-risk Learners

Funded by:
Institute of Education Sciences
U.S. Department of Education

Research Summary
- Six studies
- Four school districts
- Five elementary schools
- Approximately 300 kindergarten students
Tier 1 Vocabulary Instruction

- Participants included 123 students from three elementary schools serving diverse groups of students from at-risk populations. 80 students were in the treatment group and 43 were in the no-treatment control group.

- Students were taught the meanings of 54 vocabulary words over 36 half-hour instructional lessons (two lessons per week over 18 weeks).

- During instruction, students listened to a storybook read aloud. When target words were encountered, students were provided with a simple definition which was then used in the context of the story.

- After each reading of the storybook, teachers engaged students in activities that provided them with extended opportunities to interact with and discuss target words in varied contexts beyond those offered in the story.
“These bricks will make a fine sturdy house,” said the third little pig.

**Sturdy** means strong. Now I’ll say the sentence again with word that mean sturdy. “These bricks will make a fine strong house.” In the picture the little pig says that the bricks (point to the bricks) will make a sturdy, or strong, house. Everyone say sturdy.
Let’s play a game about our magic word drenched.

I’ll show you some pictures. If you think the picture shows something that looks drenched, or really wet, put your thumb up like this and whisper, "That looks drenched".

If the picture doesn’t show something that looks drenched, don’t say anything.
(Show picture) Do these children look drenched?

If you held up your thumb like this, you’re right! The children in this picture look drenched, or really wet.

“The children laughed as they got drenched playing in the water fountain.”
The man in this picture is drenched, or really wet.

This picture reminds me of a time when I was outside at a picnic. The skies got very dark and it started to rain. I ran to get inside the nearest building but it was too late. I got drenched from the rain. I felt cold and wet until I changed my clothes.

(removes picture) Tell me about a time when you were drenched from the rain.
## Research Evidence

### Means (SDs)

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<th></th>
<th>Treatment</th>
<th>Control</th>
<th>d</th>
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<tbody>
<tr>
<td><strong>Proximal Measure</strong></td>
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<td></td>
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</tr>
<tr>
<td>Target Words</td>
<td>55.50 (37.58)</td>
<td>9.52 (5.51)</td>
<td>1.71</td>
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<tr>
<td><strong>Transfer Measures</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPVT</td>
<td>98.99 (13.96)</td>
<td>91.46 (11.13)</td>
<td>0.60</td>
</tr>
<tr>
<td>Listening Comp.</td>
<td>3.32 (2.58)</td>
<td>2.42 (1.56)</td>
<td>0.42</td>
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<tr>
<td></td>
<td>Cohen's $d$ (SS=85)</td>
<td>Cohen's $d$ (SS=100)</td>
<td>Cohen's $d$ (SS=115)</td>
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<td>------------------------</td>
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</tr>
<tr>
<td><strong>Target Words</strong></td>
<td>1.06</td>
<td>1.75</td>
<td>2.44</td>
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<tr>
<td><strong>PPVT</strong></td>
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<td>0.48</td>
<td>0.81</td>
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<tr>
<td><strong>Listening Comp.</strong></td>
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<td>0.41</td>
<td>0.74</td>
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## Differential Effects

<table>
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<th>Cohen's d (SS=115)</th>
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Project IVI:  
Intensifying Vocabulary Intervention

Funded by:  
Institute of Education Sciences  
U.S. Department of Education

Purpose

- Draw on validated principles of instructional design and delivery to intensify vocabulary instruction/intervention to optimize its effectiveness with kindergarten students most at risk of learning disabilities.
Question

- Can Tier 2 vocabulary intervention increase the word learning of students at risk of language and learning difficulties?

Design

- All students received whole class Tier 1 vocabulary instruction
- Students with lower levels of vocabulary knowledge (PPVT < 92) received additional Tier 2 intervention on half the target vocabulary words
Screening

Tier 2:
Supplemental Vocabulary Intervention

PPVT < 92
Tier 2 Intervention

Picture Vocabulary

Not-at-Risk, Tier 1

At-Risk, Tier 1
Tier 2 Intervention

Picture Vocabulary

- Not-at-Risk, Tier 1: 2.65
- At-Risk, Tier 1: 1.75
- At-Risk, Tier 1+2: 2.45
Students at risk for language and learning difficulties learned words that receive both Tier 1 & Tier 2 instruction to a greater extent than words that received only Tier 1 instruction.

The word learning of students at risk for language and learning difficulties who receive both Tier 1 & Tier 2 instruction was approached the word learning of their peers who were not at risk who received only Tier 1 instruction.
Screening Assessments

Screening Questions

- What measure(s) will we use to determine which students receive supplemental intervention?
  - Is it predictive of important outcomes?
  - Is it efficient/feasible to administer?

- What gating procedures will we use to determine which students receive supplemental intervention?
  - Criterion “benchmark” scores?
  - National/Local norms? (what % level)
  - Resource capacity? (how many students can we serve)
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Progress Monitoring - Assessments that determine if instruction or intervention is enabling students to make adequate progress.
Diagnostic assessments help teachers plan instruction by providing in-depth information about students’ skills and instructional needs.

- Can be administered to all students, but most often administered to students who need intervention
- Must measure a variety of component skills or abilities, and must be directly useful in planning subsequent instruction
CBER

Purposes for Assessment

**Evaluation/Outcome** - Assessments that provide a bottom-line evaluation of the effectiveness of a school’s instruction.

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**Progress Monitoring** - Assessments that determine if instruction or intervention is enabling students to make adequate progress.
Questions

- Are individual children on track for meeting end of year reading goals?
- Is intervention enabling children to make sufficient progress?
- Is our instruction working?

Instructional Implications

- Adjust and intensify instruction and intervention so that children have the best chance of meeting reading goals.
- Do what it takes to keep children on track.
Stacy

- A first grade student who moved to Center School in December.
- On the January benchmark ORF assessment, she read 4 correct words per minute (cwpm).
- According to benchmark goals for Winter of 1st grade, Stacy is at high risk for failing to meet the end of year goal.
- An analysis of assessment protocols indicated that Stacy:
  - Had established phonemic awareness
  - Knew all her letter sound correspondences
  - Lacked a strategy for decoding words
  - Knew very few sight words
Stacy’s Instructional Plan

- Take part in all classroom reading instruction (i.e., core instruction).
- Receive small group intervention (5-6 students) focusing on decoding, for 30 minutes, four times a week.
- Monitor progress weekly.
Progress Monitoring: CBM

CBER

Adjust intervention


Aimline
Progress Monitoring: CBM

Adjust intervention

Aimline

Project ERI: Early Reading Intervention

Funded by:
Institute of Education Sciences
U.S. Department of Education

Purpose

- Test and replicate the curriculum efficacy of the Early Reading Intervention (ERI) in kindergarten
- Investigate the effects of intensifying ERI with students most at risk of reading disabilities
Research Question: Year 03

- Does adjusting instructional support based on response to intervention lead to increased learning outcomes for kindergarten students receiving a small group beginning reading intervention?
Participants

- 9 schools in TX, CT, & FL
- 17 interventionists
  - Interventionists were school identified and included paraprofessionals, reading teachers, special education teachers, and other specialists
- 101 kindergarten students
  - 67 treatment students
  - 34 comparison students
Participants

- Students were screened on measures of alphabet knowledge and phonological awareness to identify those students who were most at risk for experiencing reading difficulties at the beginning of kindergarten (e.g., performing below the 30%)
- Students who qualified were randomly assigned to the treatment (ERI modified) or comparison conditions (ERI standard)
- Interventionists were also assigned to treatment or comparison conditions (some interventionists taught groups in both conditions)
The Early Reading Intervention

- Small-group beginning reading intervention that focuses on key foundational reading and spelling skills.
  - **Phonemic skills:** first and last sound isolation, blending, and segmentation
  - **Alphabetic skills:** letter name/sound identification, word decoding, letter dictation, and whole word spelling
- 126 carefully sequenced and highly scripted 30-minute lessons
- Previous research supports the efficacy of ERI on early pre-reading and reading outcomes
  (Simmons et al., in press; Simmons et al., 2007)
Project ERI

ERI Standard Condition

- ERI was implemented as designed
  - Small groups (3-5)
  - 30-minutes per day, 5-days per week
  - Started at Lesson 1 and progressed sequentially through the program (1 lesson per day)
  - Students took 4 program specific mastery assessments over the year
ERI Modified Condition

- Implementation of ERI was adjusted based on students’ response to the intervention
- Ongoing response data
  - Interventionists collected informal data on student response weekly and students took 8 program specific mastery assessments over the course of the year
- Regrouping
  - Students were regrouped based on data from program mastery assessments
  - Regrouping opportunities occurred approximately every 4 weeks
- Program Pacing
  - Groups repeated or skipped specified lessons based on data from program mastery assessments
## Measures

### Phonemic Awareness Skills
- **DIBELS**: Phonemic Segmentation Fluency
- **CTOPP**: Blending Words

### Alphabetic Skills
- **WRMT**: Letter-Sound Checklist
- **DIBELS**: Nonsense Word Fluency
- **WRMT**: Word Attack
- **WRMT**: Word ID
- **Test of Written Spelling**
<table>
<thead>
<tr>
<th>Measures</th>
<th>Effect Size</th>
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<tbody>
<tr>
<td><strong>Phonemic Awareness Skills</strong></td>
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<td>DIBELS: Phonemic Segmentation Fluency</td>
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<td>CTOPP: Blending Words</td>
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<td><strong>Alphabetic Skills</strong></td>
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<td>WRMT: Letter-Sound Checklist</td>
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<td>DIBELS: Nonsense Word Fluency</td>
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<tr>
<td>WRMT: Word Attack</td>
<td>.44</td>
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<td>WRMT: Word ID</td>
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<tr>
<td>Test of Written Spelling</td>
<td>.36</td>
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Effect Sizes

- Magnitude of the effect of an intervention

<table>
<thead>
<tr>
<th>Effect Size: $d$</th>
<th>Magnitude</th>
<th>Improvement Index</th>
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<tbody>
<tr>
<td>0.25</td>
<td>small</td>
<td>10 percentile points</td>
</tr>
<tr>
<td>0.5</td>
<td>medium</td>
<td>20 percentile points</td>
</tr>
<tr>
<td>0.8</td>
<td>large</td>
<td>30 percentile points</td>
</tr>
</tbody>
</table>

Improvement Index: the expected change in percentile rank for an average comparison group student if the student had received the intervention.
Summary & Implications

- In this study, adjusting instructional support based on response to intervention lead to reliable learning gains across multiple measures assessing phonemic, alphabetic, reading, and spelling skills.
- Adjustments in intervention were fairly modest in scope and relatively feasible for school personnel to carry out.
Progress Monitoring Questions

- CBM or CBA?
- How do we make decisions about when and how to adjust and intensify Tier 2 intervention.
- Do we have mechanisms in place to adjust and intensify Tier 2 intervention?
- **Alterable Components of Intervention**
  - Content, Pacing, Programs/Materials, Interventionist/Interventionist Expertise, Grouping, Dosage, Scheduling
“Weighing cows won’t make ‘em fatter.”

Assessment data must:

- Answer important questions
- Enable informed instructional decision making
Research

Conduct school-based research on developing and evaluating evidence-based practices in literacy, behavior supports, and assessment

Translating Research to Practice

Support schools, districts, and states in adopting, implementing, and sustaining evidence-based practices