RTI Implementer Series
Module 3: Multi-Level Prevention System

National Center on Response to Intervention
Session Agenda

- Welcome and Introductions
- Review
- What Is Multi-Level Instruction?
- Selecting Evidence-Based Practices
- Wrap-Up: Review, Questions, and Resources
Upon Completion Participants Will Be Able To:

- Use screening and progress monitoring data to make decisions at all levels of the multi-level prevention system, including movement between levels.
- Develop a multi-level prevention system.
- Select evidence-based interventions and practices.
REVIEW: SCREENING AND PROGRESS MONITORING
Defining RTI

- Response to intervention (RTI) integrates assessment and intervention within a school-wide, multi-level prevention system to maximize student achievement and reduce behavior problems.
Defining RTI

- With RTI, schools identify students at risk for poor learning outcomes, monitor student progress, provide evidence-based interventions and adjust the intensity and nature of those interventions based on a student’s responsiveness; and

- RTI may be used as part of the determination process for identifying students with specific learning disabilities or other disabilities (in accordance with state law).
RTI as a Preventive Framework

- RTI is a multi-level instructional framework aimed at improving outcomes for ALL students.
- RTI is preventive and provides immediate support to students who are at risk for poor learning outcomes.
- RTI may be a component of a comprehensive evaluation for students with learning disabilities.
Essential Components of RTI

- Screening
- Progress Monitoring
- School-Wide, Multi-Level Prevention System
  - Primary Level
  - Secondary Level
  - Tertiary Level
- Data-Based Decision Making for
  - Instruction
  - Evaluating Effectiveness
  - Movement Within the Multi-Level System
  - Disability Identification (in Accordance With State Law)
Essential Components of RTI
Screening

- PURPOSE: Identify students who are at risk for poor learning outcomes
- FOCUS: ALL students
- TOOLS: Brief assessments that are valid, reliable, and demonstrate diagnostic accuracy for predicting learning or behavioral problems
- TIME FRAME: Administered more than one time per year (e.g., fall, winter, spring)
Progress Monitoring

- **PURPOSE:** Monitor students’ response to primary, secondary, or tertiary instruction in order to estimate rates of improvement, identify students who are not demonstrating adequate progress, and compare the efficacy of different forms of instruction
- **FOCUS:** Students identified through screening as at risk for poor learning outcomes
- **TOOLS:** Brief assessments that are valid, reliable, and evidence-based
- **TIME FRAME:** Students are assessed at regular intervals (e.g., weekly, biweekly, or monthly)
Data-Based Decision Making

- Analyze data at all levels of RTI implementation (e.g., state, district, school, grade level) and all levels of prevention (i.e., primary, secondary, or tertiary).
- Establish routines and procedures for making decisions.
- Set explicit decision rules for assessing student progress (e.g., state and district benchmarks, level and/or rate).
- Use data to compare and contrast the adequacy of the core curriculum and the effectiveness of different instructional and behavioral strategies.
Review Activity

- What is the difference between a mastery measure and a general outcome measure?
- T or F: All progress monitoring tools are created equal.
- Where can I find evidence of the reliability and the validity of progress monitoring tools?
- Name three uses of progress monitoring data.
- What is a trend line?
- What are three ways to establish progress monitoring goals?
- Describe two ways to analyze progress monitoring data.
WHAT IS A MULTI-LEVEL PREVENTION SYSTEM?
Essential Components of RTI
Levels, Tiers, and Interventions

**FRAMEWORK**
3 levels of intensity:
- Primary
- Secondary
- Tertiary

- **Primary Level of Prevention** (~80% of students)
- **Secondary Level of Prevention** (~15% of students)
- **Tertiary Level of Prevention** (~5% of students)
Levels, *Tiers*, and Interventions

**MODEL**
Minimum of 3 tiers representing each level of intensity

- **Tier I** (primary)
- **Tier II** (secondary)
- **Tier III** (tertiary)
Levels, Tiers, and *Interventions*

Interventions are provided at each level and within each tier.
NCRTI Recommends Different Evidence Standards Across Intervention Levels

**Research-based curricula:**
- Recommended for primary prevention across subjects.
- Components have been researched and found to be generally effective.
- Curriculum materials have not been rigorously evaluated as a package.

**Evidence-based intervention:**
- Recommended for secondary and tertiary prevention (when available)
- Materials evaluated using rigorous research design
- Evidence of positive effects for students who received the intervention

(NCRTI, 2010)
PRIMARY PREVENTION LEVEL
Primary Prevention Level

- **FOCUS:** ALL students
- **INSTRUCTION:** District curriculum and instructional practices that are research based; aligned with state or district standards; and incorporate differentiated instruction
- **SETTING:** Regular education classroom
- **ASSESSMENTS:** Screening, continuous progress monitoring, and outcome measures or summative assessments
Primary Prevention Focus

- ALL students
- Includes students with disabilities, learning differences, or language barriers
- Increase access through
  - Differentiated instruction
  - Practices that are linguistically and culturally responsive
  - Accommodations
  - Modifications
Primary Level Instruction

- Research-based curriculum materials for students (including subgroups)
- Implementation fidelity
- Articulation of teaching and learning within and across grades
- Differentiation of instruction based on data
- Ongoing professional development

See NCRTI Integrity Rubric
What Is Core Curriculum in RTI?

- Course of study deemed critical
- Usually mandatory for all students of a school or a school system
- Often instituted at the elementary and secondary school levels by local school boards, departments of education, or other administrative agencies charged with overseeing education
What Are Differentiated Learning Activities?

- Offers students in the same class different teaching and learning strategies based on:
  - Student assessment data and knowledge of student readiness
  - Learning preferences
  - Language and culture
What Are Differentiated Learning Activities?

- Involves
  - Mixed instructional groupings,
  - Team teaching,
  - Peer tutoring,
  - Learning centers, and
  - Accommodations to ensure that all students have access to the instructional program

- Is NOT the same as providing more intensive interventions to students with learning disabilities
Primary Prevention Setting

- Regular education classroom or similar setting
- Various grouping strategies (examples):
  - Whole class
  - Cooperative learning groups
  - Peer dyads
Primary Prevention Assessment

- *Universal screening* to determine students’ current level of performance
- *Continuous progress monitoring* to confirm risk status and monitor progress of at-risk students
- *Outcome measures or summative assessments* for accountability
Progress Monitoring and Screening Data Within Primary Prevention

- Screening data
  - Identify students who need additional assessment or instruction.
  - Evaluate the effectiveness of primary prevention for all students.

- Progress monitoring data
  - Confirm and disconfirm risk.
Screening: Identify Students Who Need Additional Assessment and Instruction

Benchmark Scores for Grade 2 Screening Measure

Fall

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Above average

Average

Below average

Student

National Center on Response to Intervention

30
Screening: Evaluate Effectiveness of Primary Prevention

- Target score
- General population
- Title I
- Special education

Score

Fall Winter Spring
Progress Monitoring: Confirming Risk Status

Weeks of Instruction

Digits Correct in 3 Minutes

We see a positive trend over the weeks of instruction.
Progress Monitoring: Confirming Risk Status

![Graph showing the number of problems correct in 3 minutes over weeks of instruction.](image)

- Vertical axis: Problems Correct in 3 Minutes
- Horizontal axis: Weeks of Instruction

The graph indicates that the student's progress is stable over the weeks of instruction.
Team Activity: Primary Prevention

- Complete column 2: Primary prevention for:
  - Tier(s)
  - Focus
  - Instruction
  - Setting
  - Assessment
  - Data-based decision making
  - Other

See Training Manual Appendix B for Handout
SECONDARY PREVENTION LEVEL
Secondary Prevention Level

- **FOCUS:** Students identified through screening as at risk for poor learning outcomes
- **INSTRUCTION:** Targeted, supplemental instruction delivered to small groups
- **SETTING:** Regular education classroom or other regular education location within the school
- **ASSESSMENTS:** Progress monitoring, diagnostic
Secondary Prevention Focus

- Students identified through screening as at risk for poor learning outcomes
- Typically 15%-20% of entire population
Secondary Level Instruction

- evidence-based
- Aligns with and supports core instruction
- Implementation fidelity based on developer guidelines
- Delivered by well-trained staff in optimal group sizes
- Decisions are based on valid and reliable data and criteria are implemented accurately
- Supplements core instruction

See NCRTI Integrity Rubric
Secondary Prevention Setting

- Regular education classroom or similar setting
- Adult-led instruction
- Small group rather than whole class
Secondary Prevention Assessment

- Decisions about responsiveness to intervention
  - Are based on reliable and valid progress monitoring data.
  - Reflect judgment based on the slope of improvement or final status at the end of the intervention period.
- Decision-making rules are applied accurately and consistently
Secondary Prevention Assessment

- Progress monitoring
  - Monitor student response to secondary instruction.
  - Evaluate the efficacy of the secondary system.
  - Conduct at least monthly.

- Diagnostic assessment
  - Match students’ needs to interventions.
Secondary Prevention Goal Setting

- End-of-year benchmarking
- National norms for weekly rate of improvement (slope)
Progress Monitoring Data Within Secondary Prevention

- Progress monitoring data
  - Determine response to secondary interventions using
    - The four-point rule.
    - Trend-line analysis.
  - Compare efficacy of secondary interventions.
Progress Monitoring: Determining Response Using the Four-Point Rule
Progress Monitoring: Determining Response Using Trend Line Analysis
Progress Monitoring: Compare Efficacy of Secondary Interventions

Growth by Intervention Type

Words Read Correctly

Week 1  Week 2  Week 3  Week 4

- Intervention A
- Intervention B
- Intervention C
Progress Monitoring: Evaluate Efficacy of Secondary System

- Data should indicate the following:
  - Most students benefit from secondary interventions, but a small percent will need more intensive, individualized instruction (tertiary)
  - Implementation fidelity for interventions and data-based decision rules
Team Activity: Secondary Prevention

- Complete column 3: Secondary prevention for
  - Tier(s)
  - Focus
  - Instruction
  - Setting
  - Assessment
  - Data-based decision making
  - Other

See Training Manual Appendix B for Handout
TERTIARY PREVENTION LEVEL
Tertiary Prevention Level

- **FOCUS:** Students who have not responded to primary or secondary level prevention
- **INSTRUCTION:** Intensive, supplemental instruction delivered to small groups or individually
- **SETTING:** Regular education classroom or other appropriate setting within the school
- **ASSESSMENTS:** Progress monitoring, diagnostic
Tertiary Prevention Focus

- Students who have not responded to primary or secondary level prevention, or who present with markedly low achievement
- Typically 3%-5% of the entire population
Tertiary Level Instruction

- Evidence-based or based on validated progress monitoring methods for individualizing instruction
- More intense than secondary
- Implementation fidelity
- Delivered by well-trained staff in optimal group sizes
- Decisions are based on valid and reliable data, and criteria are implemented accurately.
- Address general education curriculum in appropriate manner for students.

See NCRTI Integrity Rubric
Tertiary Prevention Setting

- Regular education classroom or other appropriate setting
- Decisions are made on a case-by-case basis.
- Optimal group size is chosen for ages and needs of students.
Tertiary Prevention Assessment

- Decisions about responsiveness to intervention
  - Are based on reliable and valid progress monitoring data.
  - Reflect judgment based on the slope of improvement or final status at the end of the intervention period.
- Decision-making rules are in place and applied accurately.
Tertiary Prevention Assessment

- Progress monitoring
  - Frequent progress monitoring (ideally weekly) is recommended.
  - Continuously monitor progress based on established learning trajectories indicated by the goal line.

- Diagnostic
  - Match instruction to needs.
  - Inform individualized instructional planning.
Tertiary Prevention: Goal Setting

- End-of-year benchmarking
- National norms for weekly rate of improvement (slope)
- Intra-individual
Progress Monitoring Data Within Tertiary Prevention

- Progress monitoring data
  - Determine response to secondary interventions using
    - The four-point rule.
    - Trend line analysis.
    - Trend line analysis and slope.
  - Compare efficacy of tertiary interventions.
Progress Monitoring: Determining Response Using Four-Point Rule

Graph showing progression over weeks with a goal line.
Progress Monitoring: Determining Response Using Trend Line Analysis

- Words Read Correctly
- Weeks of Instruction

Trend line
Goal line
Progress Monitoring: Determining Response Using Trend Line Analysis and Slope

Student’s new goal and slope:

\((28 - 6) \div 11 = 2.0\) slope
Progress Monitoring: Compare Efficacy of Tertiary Interventions

Growth by Intervention Type

- **Intervention A**
- **Intervention B**
- **Intervention C**

Words Read Correctly

Week 1 | Week 2 | Week 3 | Week 4
Progress Monitoring: Evaluate Efficacy of Tertiary System

- Data should indicate the following:
  - Majority of students in tertiary prevention are demonstrating adequate progress
  - Implementation fidelity for interventions, program implementation, and data decision rules
Team Activity: Tertiary Prevention

- Complete column 4: Tertiary prevention for:
  - Tier(s)
  - Focus
  - Instruction
  - Setting
  - Assessment
  - Data-based decision making
  - Other

See Training Manual Appendix B for Handout
Changing the Intensity and Nature of Instruction

- Intervention
- Duration
- Frequency
- Interventionist
- Group size
IDEA AND MULTI-LEVEL PREVENTION SYSTEM
What About Special Education?

Two groups to consider:

- Students with disabilities who are currently receiving special education
- Students being referred for special education eligibility consideration
What About Students With Disabilities?

Primary
School-wide instruction for all students, including differentiated instruction

Secondary
Supplemental group systems for students with at-risk response to primary level

Tertiary
Specialized individualized systems for students with intensive needs

~80%
~15%
~5%
Disability Identification

To ensure that underachievement in a child suspected of having a specific learning disability is not due to a lack of appropriate instruction in reading or math, the group must consider, as part of the evaluation, what is described in 34 CFR 300.304 through 300.306:

- Data demonstrate that prior to, or as a part of, the referral process, the child was provided appropriate instruction in regular education settings, delivered by qualified personnel.

- Data-based documentation of repeated assessments of achievement at reasonable intervals reflect formal assessment of student progress during instruction, which was provided to the child’s parents.

(www.idea.ed.gov)
When Do We Refer to Special Education?

Example 1: After nonresponsiveness to two secondary interventions

~80% of students

~15%

~5%

Primary

Secondary

Tertiary
When Do We Refer to Special Education?

Example 2: After nonresponsiveness to one secondary and one tertiary intervention

~80% of students

~15%

~5%

Primary

Secondary

Tertiary
Recommendations

- Collaboration between special education and regular education to develop an inclusive multi-level instruction model

- Create written guidance on the following:
  - How do special education services “fit” in the model?
  - What are the roles and responsibilities of special education staff?
  - When should students be referred for eligibility consideration?
Prereferral Model Versus RTI
SELECTING EVIDENCE-BASED PRACTICES
Selecting Evidence-Based Practices: Definitions

- **Evidence-based intervention**
  - Data demonstrate (or empirically validate) efficacy through scientific, rigorous research designs of the specific program

- **Research-based curricula**
  - May incorporate design features that have been researched generally
  - The curriculum or program as a whole has not been studied using a rigorous research design
Varying Evidence Standards

Reminder: NCRTI recommends different evidence standards across intervention levels.

- Research-based curricula
  - Recommended for primary prevention across subjects.
  - Components have been researched and found to be generally effective.
  - Curriculum materials have not been rigorously evaluated as a package
Varying Evidence Standards

- Evidence-based intervention
  - Recommended for secondary and tertiary* prevention
  - Curriculum evaluated using a rigorous research design
  - Evidence of positive effects for students who received the intervention

*Note: for students who have been persistently nonresponsive to interventions that have been administered with fidelity, strategic, data-driven individualization of instruction may be necessary.
Selecting Evidence-Based Practices

1. Identify needs and priorities.
2. Select practices to address needs.
   • Resources for identifying evidence-based practices
3. Evaluate evidence claims.
   • Standards of evidence across intervention levels/tiers within RTI
4. Implement practices.
5. Evaluate effectiveness.
1) Identifying Needs and Priorities

1. Gather a team.

2. Conduct a “needs assessment.”
   • Gather information from multiple sources.
   • Compile and summarize data.

3. Determine priorities.

See Instructional Intervention Tools Chart User’s Guide
Identifying Needs and Priorities

- Evaluate existing data to determine baseline performance on indicators of interest.
  - Academic achievement
  - Disciplinary referrals
  - Attendance/truancy data
Identifying Needs: Interventions

- For **what skills** do we need a secondary intervention instructional program? Is there a specific academic **outcome or measure** for which we are interested in providing supplemental instruction?

- For **what grades** do we need an instructional program?

- Will this program be used with all students who are not progressing in the core curriculum or only with specific sub groups of students? **Primary? Secondary? Tertiary?**

- Which **sub groups**? English language learners (ELLs)? Students with disabilities?

See Instructional Intervention Tools Chart User’s Guide
Identifying Priorities: Interventions

- Is it a program that can be purchased for a **reasonable cost**?
- Is it a program with a reasonable **implementation time**?
- Is it a program that requires **specialized expertise or lengthy training** to administer?
- Is it a program that offers ready access to **training and technical support** for staff?
- Is it a program that has **documented evidence of efficacy** through the most rigorous research?
- Is it a program whose **effectiveness has been studied and demonstrated in our district or state**?

See Instructional Intervention Tools Chart User’s Guide
Selecting Evidence-Based Practices

1. Identify needs and priorities.
2. Select practices to address needs.
   • Resources for identifying evidence-based practices
3. Evaluate evidence claims.
   • Standards of evidence across intervention levels/tiers within RTI
4. Implement practices.
5. Evaluate effectiveness.
2) Selecting Evidence-Based Practices

- Screening and progress monitoring
- Data-based decision making
- Instruction/interventions

See Training Manual Appendix C for more Resources
Selecting Evidence-Based Practices: Screening and Progress Monitoring

Examples:

- NCRTI: Screening Tools Chart
- NCRTI: Progress Monitoring Tools Chart
- IES practice guide: RTI for mathematics and reading
- IRIS Center modules and RTI/assessment training modules
Selecting Evidence-Based Practices: Data-Based Decision Making

Examples:

- IES Practice Guide: Using Student Achievement Data
- U.S. Department of Education: Doing What Works and the American Recovery and Reinvestment Act
- IRIS Center Case Study Unit RTI: Data-based Decision Making
Selecting Evidence-Based Practices: Instruction/Intervention

Examples:
- What Works Clearinghouse
- Best Evidence Encyclopedia
- NCRTI Instructional Intervention Tools Chart
- Center on Instruction
- IES Practice Guide: RTI for Mathematics and Reading
- IRIS Center Learning Strategies Modules
Selecting Evidence-Based Practices

1. Identify needs and priorities.
2. Select practices to address needs.
   • Resources for identifying evidence-based practices
3. Evaluate evidence claims.
   • Standards of evidence across intervention levels/tiers within RTI
4. Implement practices.
5. Evaluate effectiveness.
3) Evaluating Evidence

- Where can I find evidence?
- What type of evidence exists?
- What is the quality of the evidence?
- What were the desired outcomes?
- What are the effects of the intervention?
- Is the sample population similar?
Evaluating Evidence: Where?

- Curriculum websites (use with caution)
- Peer-reviewed journals (various)
  - ERIC
  - Google Scholar
  - Education Abstracts (Education Full Text)
  - Psychological Abstracts
Evaluating Evidence: Where?

- What Works Clearinghouse
- Best Evidence Encyclopedia
- NCRTI Instructional Intervention Tools Chart
Evaluating Evidence: Type?

- What type of evidence is available?
  - Research study
  - Summary of existing research
  - Technical report
  - Peer/publisher claims
  - Other methods?
Evaluating Evidence: Type?

- Randomized control trial*
- Quasi-experiment
- Single-case design
- Quantitative research synthesis

* Most rigorous form of research
Evaluating Evidence: Quality?

- How was the program implemented? Is it realistic under normal circumstances?
  - Who implemented the intervention?
  - Was the intervention described?
  - Was there a manual or a script?
  - How often did the intervention occur?
  - Was fidelity evaluated in the study? If so, how?
  - What phase of research? (exploratory, pilot, efficacy, scale-up)
Evaluating Evidence: Desired Outcomes?

- Were the outcomes assessed relevant to your outcomes?
  - What outcome measures were used to evaluate the intervention?
  - Do the outcome measures seem reasonable?
  - Are they relevant to your concerns?
  - Are they reliable and valid?
  - Is it feasible to implement with your population?
Evaluating Evidence: Effects?

- Are the effects large enough to be meaningful?
  - Significance of differences
  - Interpretation of effect sizes

Practitioners can use this information to compare programs and identify those most likely to meet their specific needs.
Evaluating Evidence: Population?

- For which population does the evidence show an effect?
  - Is the sample described?
  - Can you tell who was studied?
  - Is the participant similar to or representative of your student population?
  - Are there different effects for different population groups?
Demonstration

- What Works Clearinghouse
- Best Evidence Encyclopedia
- NCRTI Instructional Intervention Tools Chart
What Works Clearinghouse

Click here to select a topic area
What Works Clearinghouse

You can use the drop down to find topics by outcomes.

You can also click on the Find what works link for a more extensive search feature.
What Works Clearinghouse

What outcome are you focused on?

What grade level are you looking for?

Is there a specific focus or population?
**What Works Clearinghouse**

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<thead>
<tr>
<th>Effectiveness</th>
<th>What level of effectiveness are you looking for?</th>
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<td>Extent of Evidence</td>
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<td>Program Type</td>
<td>Are you looking for a curriculum, a supplemental intervention, or a practice?</td>
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Click here to create a report
What Works Clearinghouse

- Use the filter to select your interest
- Look at the results provided for the student outcome, the improvement index, the effectiveness rating, and the extent of evidence.
- Click the link to learn more about the intervention and research
Evaluating Evidence

Click here to learn more about the interventions

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Evaluating Evidence

**Accelerated Reader™ (Reviewed for Beginning Reading)**

Accelerated Reader™ is a guided reading intervention used to supplement regular reading instruction in K-12 classrooms. Its aim is to improve students' reading skills through reading practice and quizzes on the books students read. The Accelerated Reader™ program calls for students to select and read a book and then take a computerized quiz based on the book's content and vocabulary. The computer software then provides teachers with information on the students' performance on the quiz, which allows teachers to monitor...

**Outcome Domain**

- **Reading achievement**
  - Improvement Index: 10
  - Effectiveness Rating: +
  - Extent of Evidence: Small

- **Reading fluency**
  - Improvement Index: 5
  - Effectiveness Rating: O
  - Extent of Evidence: Small

- **Reading comprehension**
  - Improvement Index: 0
  - Effectiveness Rating: +
  - Extent of Evidence: Medium to Large
Evaluating Evidence

**Accelerated Reader™ (Reviewed for Beginning Reading)**

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Evaluating Evidence

Accelerated Reader™ (Reviewed for Beginning Reading)

Evidence Rating Key

Positive Effects: strong evidence of a positive effect with no overriding contrary evidence.

Potentially Positive Effects: evidence of a positive effect with no overriding contrary evidence.

Mixed Effects: evidence of inconsistent effects.

No Discernible Effects: no affirmative evidence of effects.

Potentially Negative Effects: evidence of a negative effect with no overriding contrary evidence.

Negative Effects: strong evidence of a negative effect with no overriding contrary evidence.

Effectiveness Rating

Extent Of Evidence

Small

Small

Medium to Large

Reading comprehension

0
# Evaluating Evidence

**Accelerated Reader™ (Reviewed for Beginning Reading)**

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Evaluating Evidence

**Accelerated Reader™ (Reviewed for Beginning Reading)**

Accelerated Reader™ is a guided reading intervention used to supplement regular reading instruction in K–12 classrooms. Its aim is to improve students’ reading skills through reading practice and quizzes on the books students read. The Accelerated Reader™ program calls for students to select and read a book and then take a computerized quiz based on the book’s content and vocabulary. The computer software then provides teachers with information on the students’ performance on the quiz, which allows teachers to monitor...

**Intervention Characteristics**
- **Grade:** K, 1, 2, 3
- **Population:** General Education
- **Delivery Method:** Individual
- **Program Type:** Curriculum, Supplement

**Outcome Domain**

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Program Information

What Works Clearinghouse

Accelerated Reader

**Program Description**
The Accelerated Reader program is a guided reading intervention in which teachers are closely involved with student reading of text. It involves two components, the Accelerated Reader software and Accelerated Reader Best Classroom Practices (formerly called Reading Renaissance). The Accelerated Reader software is a computerized supplementary reading program. Accelerated Reader relies on independent reading practice as a way of managing student performance by providing students and teachers feedback from quizzes based on books the students read. Accelerated Reader Best Classroom Practices are a set of recommended principles on guided independent reading (or teachers’ direction of students’ interactions with text) that ensure Accelerated Reader is implemented with integrity.

**Research**
Two studies of Accelerated Reader meet the What Works Clearinghouse (WWC) evidence standards. One of the studies evaluated 572 students from grades K to 3 attending 11 schools in a southern school district in the United States. The second study included 92 students in grades 3 attending one school in the Pacific Northwest.

**Effectiveness**
Accelerated Reader was found to have no discernible effects on reading fluency, mixed effects on comprehension, and potentially positive effects on general reading achievement.

<table>
<thead>
<tr>
<th>Rating of effectiveness Improvement index*</th>
<th>Alphabetics</th>
<th>Reading Fluency</th>
<th>Comprehension</th>
<th>General reading achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>na</td>
<td>No discernible effects</td>
<td>Mixed effects</td>
<td>Potentially positive effects</td>
<td></td>
</tr>
<tr>
<td>na</td>
<td>+3 percentile points</td>
<td>Range: -12 to +12 percentile points</td>
<td>Average: +15 percentile points Range: +10 to +25 percentile points</td>
<td></td>
</tr>
</tbody>
</table>

*This report has been updated to include reviews of 02 studies that have been released since 2005. A complete list and disposition of all studies reviewed is provided in the references.

1. The evidence presented in this report is based on available research. Findings and conclusions may change as new research becomes available.

2. The descriptive information for this program was obtained from a publicly available source: the program’s website [www.ies.nidc.gov](http://www.ies.nidc.gov), downloaded July 2005. The WWC requests developers to review the program description sections for accuracy from their perspective. Further verification of the accuracy of the descriptive information for this program is beyond the scope of this review.

3. These numbers show the average and range of student-level improvement indices for all findings across the two studies.
Team Activity: What Works Clearinghouse

1. What effective supplemental (Secondary or Tertiary), small group, and reading comprehension programs are available for eighth-grade students?

2. How many programs show a positive improvement index for mathematics achievement?

3. Identify a program used in your district/school
   - What is the improvement index, the evidence rating, and the extent of evidence?
   - What additional information is available about the evidence in the program report?
Best Evidence Encyclopedia

Click to select the topic:
• subject matter
• grade level
• focus area (e.g., ELLs, struggling readers)
Finding an Evidence-Based Program

Find programs that show high or moderate levels of effectiveness

Find programs that show limited evidence of effectiveness

Find programs with insufficient evidence or no qualifying studies

See the key findings, the summary and the methods
Best Evidence Encyclopedia

- **Mathematics Curricula (MC)**, such as *The University of Chicago School Mathematics Project, Connected Mathematics, Saxon Math*, and other standard and alternative textbooks.
- **Computer-Assisted Instruction (CAI)**, such as *I Can Learn, Jostens/Compass Learning, and Accelerated Math*.
- **Instructional Process Programs (IP)**, such as cooperative learning, mastery learning, and other approaches primarily intended to change teachers' instructional strategies rather than curriculum or technology.
Best Evidence Encyclopedia: Review Criteria

Studies are rated based on the effect size, the type of study, and the size of study.

Review criteria
## Selecting an Evidence-Based Program

### Top-Rated Programs

<table>
<thead>
<tr>
<th>Rating</th>
<th>Program</th>
<th>Type</th>
<th>Description</th>
<th>Contact/Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong Evidence of Effectiveness</td>
<td>IMPROVE</td>
<td>IP-Cooperative Learning</td>
<td>A program that combines cooperative learning, metacognitive instruction, and mastery learning that accommodates student diversity in a heterogeneous classroom.</td>
<td>E-mail: <a href="mailto:neran1@blu.ac.il">neran1@blu.ac.il</a></td>
</tr>
<tr>
<td></td>
<td>Student Teams-Achievement Division (STAD)</td>
<td>IP-Cooperative Learning</td>
<td>A cooperative learning program in which students work in 4-member heterogeneous groups to help each other master academic content. Teachers follow a schedule of teaching, team work, and individual assessment.</td>
<td>Website: <a href="http://www.successforall.org">www.successforall.org</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Contact Rachael Edwards at <a href="mailto:powerteaching@successforall.org">powerteaching@successforall.org</a></td>
</tr>
</tbody>
</table>
Evaluating Evidence

<table>
<thead>
<tr>
<th>Rating</th>
<th>Program</th>
<th>Type</th>
<th>Description</th>
<th>Contact / Website</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IMPROVE</td>
<td>IP-Cooperative Learning</td>
<td>A program that combines cooperative learning, metacognitive instruction, and mastery learning that accommodates student diversity in a heterogeneous classroom.</td>
<td>E-mail: <a href="mailto:mevarz@mail.biu.ac.il">mevarz@mail.biu.ac.il</a></td>
</tr>
</tbody>
</table>

*Strong Evidence of Effectiveness:* At least two large studies, of which at least one is a randomized or randomized quasi-experimental study, or multiple smaller studies, with an effect size of at least +0.20.
Determine the Type of Program

The type of program is defined as

- **Instructional Process Programs (IP),** such as cooperative learning, mastery learning, and other approaches primarily intended to change teachers' instructional strategies rather than curriculum or technology.
Learn About the Program

<table>
<thead>
<tr>
<th>Rating</th>
<th>Program</th>
<th>Type</th>
<th>Description</th>
<th>Contact / Website</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IMPROVE</td>
<td>IP-Cooperative Learning</td>
<td>A program that combines cooperative learning, metacognitive instruction, and mastery learning that accommodates student diversity in a heterogeneous classroom.</td>
<td>E-mail: <a href="mailto:mevarz@mail.biu.ac.il">mevarz@mail.biu.ac.il</a></td>
</tr>
</tbody>
</table>

The program name, a brief description, and contact information for more information are provided.
Team Activity: Best Evidence Encyclopedia

1. What programs show strong or moderate levels of effectiveness for eighth-grade reading?

2. Were any small group tutorials (SGT in Column 3) shown to have a strong level of effectiveness for struggling readers?

3. Identify a program used in your district/school:
   • What level of evidence is reported for the program?
### NCRTI Instructional Intervention Tools Chart

<table>
<thead>
<tr>
<th>Program</th>
<th>Study</th>
<th>Participants</th>
<th>Design</th>
<th>Fidelity of Implementation</th>
<th>Measures</th>
<th># of Outcome Measures</th>
<th>Effect Size</th>
<th>Disaggregated Data Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academy of READING</td>
<td>Fiedler et al. (1987)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24 Reading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access Code</td>
<td>McMurray et al. (2010)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5 Reading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AWARD Reading</td>
<td>Block et al. (2010)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 Reading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrective Reading Decoding</td>
<td>Senker et al. (2008)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 Reading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrective Reading Decoding</td>
<td>Gunn et al. (2009)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 Reading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Vocabulary Connections</td>
<td>Nelson et al. (2011)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 Reading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Failure Free Reading</td>
<td>Torgesen et al. (2006)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14 Reading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fast ForWord Language Series</td>
<td>Miller et al. (1999)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 Reading</td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

NCRTI Instructional Intervention Tools Chart

- The tools chart lists instructional programs that can be used as *secondary interventions* within an RTI context.

- The technical review committee (TRC) does not rate instructional programs; instead the TRC rates studies of *program efficacy*.
NCRTI Instructional Intervention Tools Chart

NCRTI definition of instruction:

- Additional or alternative intervention programs to the core curriculum conducted in small groups or individually with evidence of efficacy for improving academic outcomes for students whose performance is unsatisfactory in the core program.
NCRTI Instructional Intervention Tools Chart

- Purpose: help consumers identify secondary level intervention programs that
  - Have been evaluated through rigorous design.
  - Have shown positive, meaningful treatment effects.
Search by Content or Grade Level

<table>
<thead>
<tr>
<th>Program</th>
<th>Study</th>
<th>Participants</th>
<th>Design</th>
<th>Fidelity of Implementation</th>
<th>Measures</th>
<th># of Outcome</th>
<th>Mean based on adjusted posttests</th>
<th>Mean based on unadjusted posttests</th>
<th>Disaggregated Data Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academy of Reading</td>
<td>Fiedorowicz, &amp; Tines (1987)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Search by Content:** Reading, Math, or Writing

**Search by Grade:** Elementary or Secondary
Comparing Interventions or Studies

<table>
<thead>
<tr>
<th>Program</th>
<th>Study</th>
<th>Participants</th>
<th>Design</th>
<th>Fidelity of Implementation</th>
<th>Measures</th>
<th># of Outcome Measures</th>
<th>Mean based on adjusted posttests</th>
<th>Mean based on unadjusted posttests</th>
<th>Disaggregated Data Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academy of READING</td>
<td>Friederich, Tindes (1987)</td>
<td>⚫</td>
<td>⬡</td>
<td>⬤</td>
<td>⬤</td>
<td>24 Reading</td>
<td>P = 0.19</td>
<td>P = 0.05</td>
<td>No</td>
</tr>
<tr>
<td>Access Code</td>
<td>McEntire, Brown, &amp; Zimmerman (2010)</td>
<td>⚫</td>
<td>⬡</td>
<td>⬤</td>
<td>⬤</td>
<td>5 Reading</td>
<td>P = 0.23</td>
<td>P = 0.04</td>
<td>No</td>
</tr>
<tr>
<td>AWARD Reading</td>
<td>Block, &amp; Mangieri (Tech. Rep.)</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>5 Reading</td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Corrective Reading</td>
<td>Benvene, Bender, &amp; Hirschmann (2009)</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>4 Reading</td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Decoding</td>
<td>Gunn, Bigler, &amp; Smolkowski (2000)</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>5 Reading</td>
<td></td>
<td></td>
<td>No</td>
</tr>
</tbody>
</table>

Narrow search selection to interventions that fit your needs
Comparing Interventions or Studies

**Instructional Intervention Tools Chart**

<table>
<thead>
<tr>
<th>Program</th>
<th>Study</th>
<th>Participants</th>
<th>Design</th>
<th>Fidelity of Implementation</th>
<th>Measures</th>
<th># of Outcome Measures</th>
<th>Mean based on adjusted posttests</th>
<th>Mean based on unadjusted posttests</th>
<th>Disaggregated Data Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academy of READING</td>
<td>Friedowitz, &amp; Trizek (1997)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrective Reading</td>
<td>Banner, Kindler, Beaudoin,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stein, &amp; Kirschmann (2005)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrective Reading</td>
<td>Gunn, Bigler, Smallwood, &amp;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aky (2000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Legend:**
- Convincing evidence
- Partially convincing evidence
- Unconvincing evidence
- Data unavailable or inadequate

*Added in the 2011 Review. *Effect size is positive and statistically significant for at least one measure.

Compare them side by side
NCRTI Instructional Intervention Tools Chart

Click on the name of the program to see the implementation requirements.
## Implementation Requirements

### Corrective Reading Decoding Implementation Table

<table>
<thead>
<tr>
<th>Descriptive Information</th>
<th>Usage</th>
<th>Acquisition and Cost</th>
<th>Program Specifications and Requirements</th>
<th>Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrective Reading Decoding is an intensive intervention program for students in grades 3-12 who are reading below grade level. The goal of the program is to teach the alphabetic principle and phonemic awareness skills students need to read a variety of text materials accurately and rapidly. The instructor delivers daily lessons that can usually be completed in one class period (35-45 minutes of teacher-directed work and independent student activities). Corrective Reading provides research-validated instruction. Lessons are carefully planned and tightly sequenced to give struggling students the structure and practice necessary to become skilled, fluent readers and better learners. Skills and strategies are taught with lots of examples. Daily practice in oral reading with immediate feedback is provided. Students answer comprehension questions before, during, and after the selections to ensure that they attend to the content of what they read. Practice materials are carefully aligned to instruction so that new learning is practiced to mastery and skills are transferred. Corrective Reading Decoding is intended for use in grades 3 through high school. It is designed for use with students with disabilities (including learning disabilities, mental retardation, behavioral disabilities, autism, developmental delay, and traumatic brain injury). English language learners and any student at risk of academic failure. The academic area of focus is reading (phonological awareness, phonics/word study, comprehension, fluency, and vocabulary). Corrective Reading Decoding is being taught to over 250,000 students in 1/5 of the country’s schools. The schools are located in all 50 states. Analysis of sales data indicates that approximately 30% of these customers have used the program for a period of 3 or more years.</td>
<td>Where to obtain: SRA/McGraw Hill 220 East Danieleale Road Desoto, TX 75111-2493 Phone: 888-772-5499 Web Site: <a href="http://srapline.com/">http://srapline.com/</a></td>
<td>Cost: Initial cost per student for implementing program: $29.57 to $77.52 based on program level Replacement cost per student for subsequent use: $8.37 to $14.67 based on program level Component required for implementation consist of: Teacher Materials: Presentation Books (1 or 2), Teacher’s Guide, Practice and Review CD-ROM Student Book (Levels B1, B2, and C only)</td>
<td>Four to eight hours of training is required for the instructor. Training is provided to introduce teachers to the instruction techniques of Corrective Reading. These sessions are one day in length. The consultants conducting these sessions provided:  - The research foundation utilized in the development of the program  - Instructional strategies specific to the different levels of the program  - Opportunities to practice teaching techniques  - Information on adapting instruction to meet individual needs of students  - Strategies for ongoing assessment to inform instruction and determine pacing</td>
<td></td>
</tr>
</tbody>
</table>
Technical Rigor of the Study

<table>
<thead>
<tr>
<th>Program</th>
<th>Study</th>
<th>Study Quality</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Participants</td>
<td># of Outcome Measures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Design</td>
<td>Proximal Measures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fidelity of Implementation</td>
<td>Distal Measures</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Study Quality

- Proximal Measures
- Distal Measures
Participants

<table>
<thead>
<tr>
<th>Program</th>
<th>Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academy of READING</td>
<td>Fiedorowicz &amp; Trites (1987)</td>
</tr>
<tr>
<td>AWARD Reading</td>
<td>Block &amp; Mangier (Tech. Rep.)</td>
</tr>
<tr>
<td>Corrective Reading Decoding</td>
<td>Benner, Beaudoin, &amp; Stein (2005)</td>
</tr>
<tr>
<td></td>
<td>Gunn, Biglan, Smolkowski, &amp; Ary (2000)</td>
</tr>
</tbody>
</table>

Sample size: 247 students across nine schools in three districts in grades K through 4. 124 students were in the treatment group and 123 students in the control group.

Risk Status: All students who were below grade level on screening measures of reading or pre-reading skills were identified for participation in the evaluation of supplemental instruction. Of the 255 students who qualified for participation, 150 (46.1%) were identified based on the basis of low screening measures and 105 (53.9%) were selected based on teachercreen ratings of aggression. To qualify for supplemental instruction, students selected by the aggression criteria also had to score below grade level on pre-intervention assessments. Seventeen participants (6.6%) received special education services and 27 (10.5%) received Chapter 1 services for Reading.

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Program Number</th>
<th>Percentage</th>
<th>Control Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>15</td>
<td>20.4</td>
<td>36</td>
<td>70.6</td>
</tr>
<tr>
<td>Grade 1</td>
<td>32</td>
<td>40.0</td>
<td>48</td>
<td>60.0</td>
</tr>
<tr>
<td>Grade 2</td>
<td>42</td>
<td>50.0</td>
<td>32</td>
<td>43.2</td>
</tr>
<tr>
<td>Grade 3</td>
<td>11</td>
<td>21.6</td>
<td>40</td>
<td>78.4</td>
</tr>
<tr>
<td>Grade 4</td>
<td>4</td>
<td></td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Race-ethnicity: pulled from Table 1 of same article
- African-American: Not
- American Indian: Listed
- Asian/Pacific Islander
- Hispanic: 73 (50) 79 (64)
- White: 73 (50) 79 (64)
- Other (non-Hispanic): 50 (41) 45 (36)

Socioeconomic status: Not provided
**Corrective Reading Decoding - Design**


<table>
<thead>
<tr>
<th>Program</th>
<th>Did the study use random assignment?: Yes.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>If not, was it a tenable quasi-experiment?: Not applicable.</td>
</tr>
<tr>
<td></td>
<td>If not, at pretreatment, were the program and control groups not statistically significantly different and had a mean standardized difference that fell within 0.25 SD on measures central to the study (i.e., pretest measures also used as outcomes)?: Yes.</td>
</tr>
<tr>
<td></td>
<td>If not, at pretreatment, were the program and control groups not statistically significantly different and had a mean standardized difference that fell within 0.50 SD on measures central to the study (i.e., pretest measures also used as outcomes), and outcomes were analyzed to adjust for pretreatment differences?: Not applicable.</td>
</tr>
<tr>
<td></td>
<td>Were the program and control groups demographically comparable?: Yes.</td>
</tr>
<tr>
<td></td>
<td>Was there differential attrition for the program and the control groups?: No.</td>
</tr>
<tr>
<td></td>
<td>Did the unit of analysis match the unit for random assignment (for randomized studies) or the assignment strategy (for quasi-experiments)?: Yes.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program</th>
<th>Beaudoin, &amp; Stein (2005)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gunn, Biglan, Smolkowski, &amp; Ary (2000)</td>
</tr>
</tbody>
</table>

[Image of table and web page]
## Fidelity of Implementation

<table>
<thead>
<tr>
<th>Program</th>
<th>Study</th>
<th>Study Quality</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Participants</td>
<td>Design</td>
<td>Fidelity of Implementation</td>
</tr>
<tr>
<td>Academy of READING</td>
<td>Fiedlerowitz, &amp; Trites (1987)</td>
<td>⬜</td>
<td>⬜</td>
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<tr>
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<td>Block, &amp; Mangieri (Tech. Rep.)</td>
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<td>⬜</td>
</tr>
<tr>
<td>Corrective Reading</td>
<td>Benner, Kinder, Beaudoin, Stein, &amp; Hirschmann (2005)</td>
<td>⬜</td>
<td>⬜</td>
</tr>
<tr>
<td>Corrective Reading</td>
<td>Gunn, Biglan, Smolikowski, &amp; Ary (2000)</td>
<td>⬜</td>
<td>⬜</td>
</tr>
</tbody>
</table>
# Measures

## Corrective Reading Decoding - Measures

- **WJ--III Basic Reading Skills**
  - Score type: Standard Score (mean = 100; SD = 15; age range = 6 to 90; grades = K-12 and college)
  - Reliability: Test-retest reliability coefficient = 0.95
  - Relevance: Measures basic reading skills of participants. Corrective Reading targets basic reading skills, reading fluency, and skills needed to read informational text.

- **WJ--III Letter-Word Identification**
  - Score type: Standard Score (mean = 100; SD = 15; age range = 6 to 90; grades = K-12 and college)
  - Reliability: Test-retest reliability coefficient = 0.94
  - Relevance: Measures sight vocabulary, decoding and structural analysis. In Corrective Reading, students practice identifying sounds and sound combinations, reading words composed of known sounds, reading high frequency words, and reading multisyllabic words.

- **WJ--III Word Attack (subset of the Basic Reading Skills cluster)**
  - Score type: Standard Score (mean = 100; SD = 15; age range = 6 to 90; grades = K-12 and college)
  - Reliability: Test-retest reliability coefficient = 0.87
  - Relevance: Measures skills in applying phonics and structural analysis to the pronunciation of unfamiliar words. Word identification skills presented in Corrective Reading are phonics based.

- **DASH Oral Reading Fluency**
  - Score type: End of year Correct Words Per Minute (CWP; CWP; CWP; CWP; CWP; CWP; CWP; CWP; CWP; CWP)
  - Reliability: Test-retest reliability = 0.92-0.97
  - Relevance: Measures student's oral reading rate and accuracy with connected text. Paired reading is used daily to build fluency. Assigned pairs of students read two passages. Each member of the pair first read the passage from the current story, then the passage from the preceding lesson.

## Distal Measures

- **Not Applicable**

---

**National Center on Response to Intervention**

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Technical Rigor of the Study

<table>
<thead>
<tr>
<th>Program</th>
<th>Study</th>
<th>Study Quality</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Adjusted posttest: corrects for differences in groups on pretest</td>
</tr>
</tbody>
</table>
Technical Rigor of the Study

<table>
<thead>
<tr>
<th>Program</th>
<th>Study</th>
<th>Participants</th>
<th>Design</th>
<th>Fidelity of Implementation</th>
<th>Measures</th>
<th># of Outcome Measures</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Effect Size**

Unadjusted posttest: does not account for differences in groups on pretest

135
Effect Size: Sample 1

<table>
<thead>
<tr>
<th>Program</th>
<th>Study</th>
<th>Participants</th>
<th>Design</th>
<th>Fidelity of Implementation</th>
<th>Measures</th>
<th># of Outcome Measures</th>
<th>Effect Size</th>
<th>Disaggregated Data Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrective Reading</td>
<td>Benner, Kinder, Beaudoin, Stein, &amp; Hirschmann (2005)</td>
<td>🍊</td>
<td>🍊</td>
<td>🍊</td>
<td>🍊</td>
<td>4 Reading</td>
<td>—</td>
<td>No</td>
</tr>
</tbody>
</table>

Developer was unable to provide necessary data for NCRTI to calculate effect sizes.
## Effect Size: Sample 2

<table>
<thead>
<tr>
<th>Program</th>
<th>Study</th>
<th>Participants</th>
<th>Design</th>
<th>Fidelity of Implementation</th>
<th>Measures</th>
<th># of Outcome Measures</th>
<th>Effect Size</th>
<th>Mean based on adjusted posttests</th>
<th>Mean based on unadjusted posttests</th>
<th>Disaggregated Data Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number Rockets</td>
<td>Fuchs, Compton, Fuchs, Paulsen, Bryant, et al. (2005)</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>P = 0.45ᵃ</td>
<td>P = 0.44ᵃ</td>
<td>D = 0.10</td>
<td>No</td>
</tr>
</tbody>
</table>

Mean for proximal and distal measures
### Effect Sizes

<table>
<thead>
<tr>
<th># of Outcome Measures</th>
<th>Effect Size</th>
<th>Proximal Measures</th>
<th>Distal Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Math</td>
<td>P = 1.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D = 0.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Math</td>
<td>P = 0.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D = 0.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Math</td>
<td>P = 0.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D = 0.57</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Proximal Measures

<table>
<thead>
<tr>
<th>Construct</th>
<th>Measure</th>
<th>Effect Size based on adjusted posttests</th>
<th>Effect Size based on unadjusted posttests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math</td>
<td>CBM Computation</td>
<td>0.32</td>
<td>0.33</td>
</tr>
<tr>
<td>Math</td>
<td>Fact Retrieval Addition</td>
<td>0.28</td>
<td>0.24</td>
</tr>
<tr>
<td>Math</td>
<td>Woodcock Johnson Calculations</td>
<td>0.61***</td>
<td>0.64**</td>
</tr>
<tr>
<td>Math</td>
<td>First-grade Concepts/Applications</td>
<td>0.52**</td>
<td>0.46*</td>
</tr>
<tr>
<td>Math</td>
<td>Story Problems</td>
<td>0.54**</td>
<td>0.51**</td>
</tr>
</tbody>
</table>

#### Distal Measures

<table>
<thead>
<tr>
<th>Construct</th>
<th>Measure</th>
<th>Effect Size based on adjusted posttests</th>
<th>Effect Size based on unadjusted posttests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math</td>
<td>Fact Retrieval Subtractions</td>
<td>0.13</td>
<td>0.12</td>
</tr>
<tr>
<td>Math</td>
<td>Woodcock Johnson Applied Problems</td>
<td>0.08</td>
<td>0.03</td>
</tr>
</tbody>
</table>
Disaggregated Data

- The column reports effect size data that have been disaggregated for sub groups, if available.
  - Students with disabilities
  - ELLs
  - Students from diverse racial-ethnic groups
Team Activity: Instructional Intervention Tools Chart

1. What secondary instruction programs are available for elementary mathematics students?
2. Which study has the highest average adjusted effect size?
3. What are the average unadjusted effect sizes for SSRD Writing Strategies?
4. Identify a program used in your district/school
   • What level of evidence is reported for the program?
Example 1: Bell Top Elementary School

Ms. Jones, a third-grade math teacher, has noticed that Jack, Bobby, and Jane seem to be struggling with word problems despite the strong research-based core curriculum. In looking at their scores on the screening measure, Ms. Jones noticed that they are all below the cut score. After monitoring their progress over a number of weeks she continued to see no progress. Can you identify an intervention that might help Jack, Bobby, and Jane improve? Why did you select that intervention?

See Training Manual Appendix D
Example 2: Lake Ridge Middle School

Mr. Morris has identified that Jessica does not have a strong grasp on the basic skills of reading and is therefore struggling in his class. After looking at her screening data and monitoring her progress, he has decided to implement an intervention to help her with basic reading skills. Is there an intervention available that Mr. Morris might use to help Jessica? What questions might he ask in selecting an appropriate intervention?

See Training Manual Appendix D
Team Activity: Selecting Evidence-Based Practices

- Choose a content area
- Think of intervention materials you have or are considering adopting
- Using the three sites, investigate the evidence for that program
Selecting Evidence-Based Practices

1. Identify needs and priorities.
2. Select practices to address needs.
   • Resources for identifying evidence-based practices
3. Evaluate evidence claims.
   • Standards of evidence across intervention levels/tiers within RTI
4. Implement practices.
5. Evaluate effectiveness.
4) Implement Practices

- Provide initial recommended training and professional development.
- Plan for initial implementation (e.g., scheduling, materials).
- Provide ongoing coaching and professional development.
- Monitor and evaluate fidelity of implementation.
What Is Fidelity of Implementation?
Implement Practices: Fidelity

The best way to monitor fidelity is to *measure it*.

- Self-Report Data
- Observation
- Logs, lesson plans, and student work
Evaluating Implementation: Monitoring Fidelity

Self-Report Data

- Questionnaires, surveys, interviews
- May provide an indicator of teacher knowledge, context of implementation
- Often unreliable when used alone
Evaluating Implementation: Monitoring Fidelity

Evaluating fidelity through observation

- Develop checklists of critical implementation components
- Record and listen to sessions at random
- Spot checks
- Peer observations
- Peer coaching
Evaluating Implementation: Monitoring Fidelity

Logs, lesson plans, and student work

- Allows for evaluation of what was done
  - Content covered
  - Student progress

- Less information about:
  - Delivery
  - Dosage
  - Adherence to scripts (if applicable)
Evaluating Implementation

Using Fidelity Data

- Distinguish curriculum/intervention from quality of implementation when problems occur
Evaluating Implementation

Using Fidelity Data

- Identify implementation strengths
  - People
  - Potential coaches
  - Components of intervention

- Target areas in need of improvement
  - Coaching
  - Professional development
  - Retraining
Selecting Evidence-based Practices

1. Identify needs and priorities.
2. Select practices to address needs.
   • Resources for identifying evidence-based practices
3. Evaluate evidence claims.
   • Standards of evidence across intervention levels/tiers within RTI
4. Implement practices.
5. Evaluate effectiveness.
5) Evaluate Effectiveness

- Evaluate general intervention effectiveness.
- Evaluate effectiveness for individual students.
  - Ongoing, graphed progress monitoring data
  - Reviewed at least every 4-6 weeks
  - Evidence-based decision-making criteria
  - General outcome measure versus mastery measure
Compare Efficacy of Interventions

Growth by Intervention Type

- Intervention A
- Intervention B
- Intervention C

Week 1  Week 2  Week 3  Week 4

Words Read Correctly

0  10  20  30  40  50
Intervention Effectiveness

![Graph showing Intervention A's effectiveness over weeks of instruction.](image)

- **Goal line**: Indicates the expected performance level.
- **Trend line**: Shows the actual performance over time, indicating change.
CLOSING
Things to Remember

- Good data IN ... Good data OUT
  - Know where your data came from and the validity of that data

- Focus on the big picture or ALL students
  - Are most students making progress?

- ALL instructional and curriculum decisions should be based on DATA.

- Keep it SIMPLE and EFFICIENT!
Implementing the RTI Framework

- Select and implement evidence-based practices and procedures.
- Implement essential components with integrity.
- Ensure tools and implementation reflect the cultural, linguistic, and socioeconomic factors that students bring to the classroom.
Review Activity

- Why does the NCRTI use levels instead of tiers?
- Where can districts and schools find evidence of an intervention’s effectiveness?
- How can schools monitor the fidelity of intervention implementation?
Next Steps

- Consider developing a district/school multi-level prevention framework model (e.g., guidance document):

- Develop an RTI district implementation plan.
Need More Information?

National Center on Response to Intervention
www.rti4success.org

RTI Action Network
www.rtinetwork.org

IDEA Partnership
www.ideapartnership.org
Questions?

National Center on Response to Intervention

www.rti4success.org
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