The Role of Assessment within a RtI Framework: Focus on Screening & Progress Monitoring

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Why RTI? Why now?

- Approaches to identifying students with learning problems and learning disabilities:
  - Traditional IQ/Achievement Discrepancy
  - Response-to-Intervention
Why Use RTI Over Previous Models of Identification?

- Education of All Handicapped Children Act (1975) defined “underachievement” as a discrepancy between IQ and Achievement.
- IQ/Achievement discrepancy has been criticized:
  - IQ test do not necessarily measure intelligence.
  - Discrepancy between IQ and achievement may be inaccurate.
  - Rests on a “Wait to Fail” approach.
Why Use RTI Over Previous Models of Identification?

![Graph showing percentage of students with SLDs over school years from 1976-1977 to 2005-2006.]
Why Use RTI Over Previous Models of Identification?

- RTI is an alternative framework for “underachievement”: unexpected failure to benefit from validated instruction.
- RTI eliminates poor instructional quality as an explanation for learning problems.
- Students are identified for a continuum on instructional intervention only after not responding to previous instruction that is effective for most.
  - Poor instructional quality is ruled out as an explanation for poor student performance.
- Students are provided intervention early!
  - RTI does not wait for students to fail!
Why Use RTI Over Previous Models of Identification?

Special interventions (or education) are considered only when a “dual discrepancy,” in response to validated instruction is observed.

“Dual Discrepancy” refers then to how a child’s progress compares to others “at one point in time” AND the “rate of growth” over time.
RTI Logic Model

**Inputs**
- Effective Instruction
- Progress-Monitoring
- Decision Making

**Activities**
- SBI Core Curriculum
- Supplemental Interventions
- Individualized Interventions
- Universal Screening
- Strategic Monitoring
- ID Students At-Risk
- Intervention Effectiveness

**Outputs**
- # Responding to Core
- Change in Rate of Learning
- Movement through Tiers

**Outcomes**
- Increases in Students Responding to Core
- Reduced Referrals for SPED Placement
- Decreases in # of Students ID as LD

**Impacts**
- Enhanced Academic Performance Across the Life Span

Prevention-Based RTI Model
Once we have these things in place ..... 

- Multi-tier prevention system that identifies and intervenes with students who are exhibiting academic difficulties

- Public health population based methods
  - Primary prevention
  - Secondary prevention
  - Tertiary prevention
Continuum of Schoolwide Support

**Primary Prevention:**
Schoolwide and classwide instruction

**Secondary Prevention:**
Intensified, validated intervention

**Tertiary Prevention:**
Further intensified and individualized intervention

- ~80% of students
- ~15%
- ~5%
“Trendlines? Channels? Breakouts? I say we stick the money in the ground like always, and then feed this guy to the sharks.”
RTI’s Multiple Measurement Perspectives

- Screening Assessment
  - A form of measurement where outcomes are referenced to a normative distribution or criterion of reference
  - Within RTI, screening assessments are used to compare an individual’s performance with that of a peer group or criterion value
  - Example, periodic universal screening to determine possible risk
  - Individual student data are collected at one point in time, summarized, and compared to peer group standards

- Progress Monitoring (Formative) Assessment
  - A form of assessment that produces scores that have meaning independent of peer comparisons
  - Within RTI, progress monitoring or formative assessments are used to describe an individual’s performance in general areas (e.g., reading, math) over time
  - Often summarized in time-series graphs
RTI’s Multiple Measurement Perspectives

- **Diagnostic Assessment**
  - A form of assessment that attempts to pinpoint areas of weakness and/or concern
  - Within RTI, diagnostic assessment is used to target specific areas of instructional focus
  - Example, a phonics assessment might be used to pinpoint specific weaknesses that are specific targets for intervention
  - Specific improvement is generally indexed via mastery of the skills/objectives being taught
  - Generalized improvement is measured using progress monitoring assessments
RTI's Multiple Measurement Perspectives

- **Screening Assessment**
- **Progress Monitoring (Formative) Assessment**
RTI’s Multiple Measurement Perspectives

- **Diagnostic Assessment**

![Word Wise Phonics Test](image)
NCRTI defines screening assessment as: “screening that involves brief assessments that are valid, reliable, and evidenced based [that] are conducted with all students or targeted groups of students to identify students who are at risk of academic failure and, therefore, likely to need additional or alternative forms of instruction to supplement the convention general education approach.”
## NCRTI Example

<table>
<thead>
<tr>
<th>TOOLS</th>
<th>AREA</th>
<th>Classification Accuracy</th>
<th>Generalizability</th>
<th>Reliability</th>
<th>Validity</th>
<th>Disaggregated Reliability, Validity, and Classification Data for Diverse Populations</th>
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</table>

**Chart Legend:**
- 🌟: Convincing Evidence
- 🌿: Partially Convincing Evidence
- ♦️: Unconvincing Evidence
- ❓: No Evidence Submitted
What if my screener has not been evaluated?

A thorough and critical self-evaluation needs to be conducted to determine if and to what extent the current screening instrument provides evidence of:

- **Reliability**
  - Test-Retest
  - Alternate Form
  - Split-Half
  - Internal Consistency

- **Validity**
  - Concurrent
  - Predictive

- **Classification/Diagnostic Accuracy**
  - Sensitivity
  - Specificity
  - PPP
  - NPP

- **Generalizability**
  - Replication
  - Resampling
  - G-theory

Does the screener provide evidence that it is effective in accurately discriminating those who are at-risk and those who are not at-risk?

Have multiple studies been conducted to provide evidence of reliability, validity, and classification accuracy?
Decision Making Using RTI Screening Assessment

- Once adequate reliability, validity, and classification/diagnostic accuracy conditions are satisfied.

- RTI screening measures can be used to:
  - Evaluate the overall quality of the general education program
    - Number and percentage of students who are responding to the core curriculum program
  - Determine those students for whom the general education program is insufficient for ensuring adequate academic development thus placing them at risk for further academic difficulty.
Decision Making Using RTI Screening Assessment
Decision Making Using RTI Screening Assessment

- If reliability, validity, and classification/diagnostic accuracy conditions have not been satisfied
- RTI screening measures cannot and should not be used to:
  - Evaluate the overall quality of the general education program
  - Determine those students for whom the general education is insufficient for ensuring adequate academic development
NCRTI defines absolute progress monitoring as “repeated measurement of academic performance to inform instruction of individual students in general and special education [which] is conducted at least monthly to (a) estimate rates of improvement, (b) identify students who are not demonstrating adequate progress, and/or (c) compare the efficacy of different forms of instruction to design more effective, individualized, instruction.”
# NCRTI Example

## General Outcome Measures

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<tr>
<th>TOOLS</th>
<th>AREA</th>
<th>Reliability of the Performance Level Score</th>
<th>Reliability of the Slope</th>
<th>Validity of the Performance Level Score</th>
<th>Predictive Validity of the Slope of Improvement</th>
<th>Alternate Forms</th>
<th>Sensitive to Student Improvement</th>
<th>End-of-Year Benchmarks</th>
<th>Rates of Improvement Specified</th>
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Once adequate reliability, validity, and sensitivity, specified rates of improvement/growth, and benchmarks are demonstrated

RTI formative progress monitoring can be used to:

- Summarize a student’s rate of growth and response to intervention over time, and
- Determine whether or not the intervention has resulted in sufficient response
What if My Formative Progress Monitoring Instrument Has Not Been Evaluated?

A thorough and critical self-evaluation needs to be conducted to determine if and to what extent the current formative progress monitoring instrument provides evidence of:

- Does the instrument have multiple alternate forms that can be used for progress monitoring on a weekly basis?
- Are the data reliable and sensitive?
- Are benchmarks and rates of improvement provided by grade and time of year?
- Are specified ROIs provided for benchmarking?
- Is there evidence of sensitivity to improvement?
If reliability, validity, and sensitivity, specified rates of improvement/growth, and benchmarks are demonstrated.

RTI formative progress monitoring measures cannot and should not be used to:

- Summarize a student’s rate of growth and response to intervention over time, and
- Determine whether or not the intervention has resulted in sufficient response.
Decision Making Using RTI Progress Monitoring
Formative Assessment

- If your instrument has published rate of growth information
  - Find the average rate of growth expectation that corresponds to grade level of the progress monitoring material that you are using
  - Set a goal that exceed this rate of growth by a factor of 1.5

Rate of Growth = 1.6606

Average rate of growth = 1.00.

Has this child responded positively to the intervention?
## Sample Slope Information

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How about this child?

Rate of Growth = 1.02
If your instrument has published rate of benchmark information:

- Find the benchmark that corresponds to a “long-term goal”
  - Long-term goals are typically represented by the spring benchmark for a given grade level
- Place an “X” at the level that corresponds to the end of year long-term goal
- Compare trend line to goal (aim) line to determine a student’s response to intervention
### Decision Making Using RTI Progress Monitoring Formative Assessment

#### R-CBM

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Decision Making Using RTI Progress Monitoring Formative Assessment

- How about this child?
Decision rules for formative progress monitoring data:

- Based on the five most recent consecutive scores
- Based on student’s trend-line
Formative Decision Making Using RTI Progress Monitoring

5 point rule

![Graph showing problems correct in 7 minutes over weeks of instruction]

- Most recent 5 points
- Goal-line

Weeks of Instruction
Problems Correct in 7 Minutes
Formative Decision Making Using RTI Progress Monitoring

- Based on the five most recent consecutive scores
  - If the four most recent consecutive scores are all **above** the goal-line, keep the current intervention and **increase** the goal
Formative Decision Making Using RTI Progress Monitoring

5 point rule

- Graph showing weeks of instruction vs. problems correct in 7 minutes.
- The goal-line is indicated by a dashed line.
- The most recent 5 points are highlighted with arrows.
- The X-axis represents weeks of instruction, and the Y-axis represents problems correct in 7 minutes.
Formative Decision Making Using RTI Progress Monitoring

- **Based on the five most recent consecutive scores**
  - If the five most recent consecutive scores are all **above** the goal-line, keep the current intervention and **increase** the goal
  - If the five most recent consecutive scores are all **below** the goal-line, keep the current goal and **modify** the instruction
  - When the five most recent consecutive scores are **neither** above or below the goal-line, **maintain** the current goal and instruction and continue to progress monitor
Analysis based on trend
Formative Decision Making Using RTI Progress Monitoring

- When the trend-line is steeper (i.e., accelerating) relative to the goal-line, keep the current intervention and increase the goal.
- When trend-line is lower (i.e., decelerating) relative to the goal-line, keep the current goal and modify the instruction.
- When the trend-line is equal (i.e., parallel) to the goal-line, maintain current goal and instruction and continue to progress monitor.
Formative Decision Making Using RTI Progress Monitoring

![Graph showing trends and goals in problem-solving over weeks of instruction.](image)
Formative Decision Making Using RTI Progress Monitoring

- When the trend-line is **steeper** (i.e., accelerating) relative to the goal-line, keep the current intervention and **increase** the goal.
- When trend-line is **lower** (i.e., decelerating) relative to the goal-line, keep the current goal and **modify** the instruction.
- When the trend-line is **equal** (i.e., parallel) to the goal-line, **maintain** current goal and instruction and continue to progress monitor.
Formative Decision Making Using RTI Progress Monitoring

![Graph showing trend-line and goal-line with data points for problems correct in 7 minutes over weeks of instruction.](image)
Formative Decision Making Using RTI Progress Monitoring

- When the trend-line is **steeper** (i.e., accelerating) relative to the goal-line, keep the current intervention and **increase** the goal.
- When trend-line is **lower** (i.e., decelerating) relative to the goal-line, keep the current goal and **modify** the instruction.
- When the trend-line is **equal** (i.e., parallel) to the goal-line, **maintain** current goal and instruction and continue to progress monitor.
Screening Assessment Summary

When psychometric conditions are met, screening measures can be used to:

- Reliably screen all students across a variety of academic skill domains
- Identify students who are at risk
- Evaluate the overall effectiveness of the core curriculum

When psychometric conditions are not met, screening measures run the risk of:

- Providing inconsistent and unreliable estimates of student performance
- Providing invalid assessments of students risk status
- Providing inaccurate assessments of the core curriculum’s overall effectiveness
Formative Progress Monitoring Summary

When psychometric conditions are met, formative progress monitoring measures can be used to:

- Provide sensitive estimates of students’ growth over time
- Reliably summarize weekly student performance in response to intervention
- Provide rates of growth and benchmarks to be used in goal setting
- Formatively determine when instruction is having its desired effect and when instruction needs to be altered

When psychometric conditions are not met, formative progress monitoring measures run the risk of:

- Being unable to reliably summarize weekly student performance
- Being unable to provide accurate rates of growth
- Being unable to be validly used in instructional decision making
When is in place .... A good RTI system will have ....

- Periodic universal screening
- Frequent/continuous progress monitoring
- Scientifically supported core curriculum
- Scientifically supported Tier 2 and 3 interventions
- Methods for organizing data
- Methods for making systematic decisions

Diagram:

- Assessment System
- Instructional System
- Data Management & Decision Making System
Thank You!