Using Star Early Literacy® and Star Reading® Data for Progress Monitoring and Specific Learning Disability Identification

Introduction

Renaissance® strongly supports the data-driven decision-making approach commonly known as Response to Intervention (RTI). As more states adopt the RTI process for identifying students with specific learning disabilities (SLD), educators are asking how Renaissance Star Assessments® fit within the RTI process.

According to RTI experts, a variety of test types, including computer-adaptive tests, can be used for RTI. (Kovaleski, VanDerHeyden, Shapiro, 2013). Star Early Literacy, Star Reading, and Star Math® are computer-adaptive assessments that generate valid and reliable data for screening and progress monitoring (Shapiro, 2011; Shapiro, Dennis, & Fu, 2015; Shapiro and Gibbs, 2014; US DOE, 2010, 2011, and 2012).

Since 2008, when the US Department of Education created the National Center on Response to Intervention, and later the National Center for Intensive Intervention, to evaluate screening and progress monitoring tools, Star assessments have continuously met high standards for reliability and validity.

Further, current research has found both Star Reading and Star Math to be sensitive to incremental growth and, therefore, will detect student development throughout the year in reading comprehension, math calculation and math problem solving (Shapiro and Gibbs, 2014; Shapiro, Dennis, & Fu, 2015).

Star assessments are general outcome measures that can be used to directly assess and progress monitor three of the eight areas of specific learning disabilities: reading comprehension, math calculation, and math problem solving1.

- Star Reading—reading comprehension; valid estimate of oral reading fluency for grades 1-4
- Star Math—math calculation and/or math problem solving; According to peer-reviewed research, Star Math measures problem solving and computation at the same time (Shapiro, Dennis, & Fu, 2015). To understand how the Star Math scaled score accurately reflects both skill areas, see the Star Math Technical manual (p18)2.
- Star Early Literacy—there is strong evidence that Star Early Literacy is an accurate measure of early reading behavior. It is a general outcome measure that includes items in general readiness, phonemic awareness, phonics, vocabulary, comprehension, and structural analysis. Star Early Literacy also provides a very valid estimate of oral reading fluency for grades 1-3. As such, Star Early Literacy can be used as a basic reading or fluency indicator within a body of evidence.

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1 According to the federal Individuals with Disabilities Education Act (IDEA) of 2004 (Section 300.8(c)(10), the eight areas of specific learning disabilities are: oral expression, listening comprehension, written expression, basic reading skill, reading fluency skills, reading comprehension, math calculation, and math problem solving/reasoning. [http://www2.ed.gov/legislation/FedRegister/fnrule/2006-3/081406a.html](http://www2.ed.gov/legislation/FedRegister/fnrule/2006-3/081406a.html)

2 This section explains that research conducted during item calibration demonstrated Star Math items in various strands were strongly unidimensional (e.g. associated), thus justifying the use of a single scaled score for reporting purposes (Renaissance Learning, 2014).
Step 1: Setting goals for progress monitoring

1. In Renaissance Home®, choose Star Early Literacy, Star Reading, or Star Math. (For Star 360® customers, choose Early Literacy Assessments, Reading Assessments, or Math Assessments.)

2. Then select Screening, Progress Monitoring, & Intervention.

3. Select the Progress Monitoring & Goals tab.

4. Enter student information under Search for Student and click Search. Click the student’s name.

5. To set up a new intervention and goal, click Add Goal.

6. To change the duration or goal of an existing intervention, click Edit Goal.
Provide intervention details. Name the intervention as you would like it to appear on reports, enter a goal-end date, and select a goal type.

NOTE: For students with an IEP requiring 12-month goals, multiply the weekly growth rate times the number of weeks you determine to represent one year. For example, will you count summer in the number of weeks that comprise a full year?

The Student Progress Monitoring Report will only report within one school year. However, weekly goals can still be calculated for a full year and written into an IEP.

Run the Student Progress Monitoring Report. Weekly growth rates are reported on page two of the report after four tests are taken. The more weeks of testing, the more the fluctuations in growth rates will level out.

More about Star weekly growth rates and rate of improvement:
Weekly growth rates indicate the scaled score change by which students can be expected to grow per week. To calculate the trend line on this Progress Monitoring Report, also known as the rate of improvement or slope, Star assessments use an ordinary least squares regression equation.

To learn more about setting interventions and goals or weekly growth rates in scaled scores, see the Interpretation and Guidance document.³

³ http://doc.renlearn.com/KMNet/R004381110GJ1C9F.pdf
Step 2: Connecting scaled scores with learning progressions

With Star Assessments, progress monitoring data is automatically connected to a learning progression. Instructional decisions are based on suggested skills from the learning progression, included on the Instructional Planning Report.

Student example:

i. Begin with scaled score
Kim Jones, a 7th grade student, achieved a scaled score of 417 on Star Reading during fall screening. Using the Instructional Planning Report, we know that Kim is performing between a 4th and 5th grade level.

ii. Connect scaled scores with skills
Kim’s teacher plans an intervention and sets a goal for her (see example from previous pages).

The suggested skills listed on the Instructional Planning Report are where a scaled score of 417 places Kim on the Core Progress learning progression which suggests skills Kim is likely ready to learn based on her developmental level.

The focus skills (denoted by ) are the most critical skills to learn at each grade level. While not a recipe for intervention, they are helpful for informing intervention as they are skills specific to Kim’s developmental level.

iii. A holistic approach: using scaled scores to connect with skills and to progress monitor
As Kim continues in the intervention, her teacher uses the Instructional Planning Report from fall, winter, and/or spring screening to ensure Kim is working on skills appropriate to her developmental level.

Her teacher uses the Student Progress Monitoring Report more frequently to determine if Kim is responding to intervention. If she is not showing improvement, her teacher will adjust the intervention and continue to monitor her progress. Research from RTI experts suggests the duration of eight to 15 weeks for an intervention (Ardoin et al., 2013).
Step 3: Progress monitoring

This example shows how to use the Student Progress Monitoring Report within RTI-based progress monitoring and for SLD identification.

**Intervention 1**

1. **Name**: Comprehension Strategies
2. **Dates**: September-November 2014
3. **Frequency**: 4 times per week
4. **Duration**: 30 minutes per session
5. **Measure**: Star Reading
6. **Baseline**: 417 scaled score
7. **Goal score**: 598 scaled score
8. **Goal rate of improvement**: 4.5 scaled scores per week
10. **Rate of improvement**: -2.5 scaled scores per week
11. **Goal met?**: No

**Intervention 2**

1. **Name**: Comprehension Success Skills
2. **Dates**: November 2014 – January 2015
3. **Frequency**: 5 times per week
4. **Duration**: 45 minutes per session
5. **Measure**: Star Reading
6. **Baseline**: 433 scaled score
7. **Goal score**: 598 scaled score
8. **Goal rate of improvement**: 4.5 scaled scores per week
9. **Weekly scores**: 433, 459, 451, 434, 412, 409, 429, 450
10. **Rate of improvement**: -1.2 scaled scores per week
11. **Goal met?**: No

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5 Star Assessments uses an ordinary least squares regression equation to calculate rate of improvement.
Step 4: SLD identification through gap analysis

To determine if Kim is making adequate progress toward closing the gap between her current performance and the desired level of achievement, the school-level team completes a gap analysis. This includes using data from the Student Progress Monitoring Report and the Star Reading Benchmarks, Cut Scores, and Growth Rates document to identify Kim’s rate of improvement (ROI) and the significance of the gap (see worksheet examples below and on page 7). This will help inform instructional decisions and next steps for Kim.

Rate of improvement worksheet example

<table>
<thead>
<tr>
<th>Rate of Improvement (ROI) Worksheet</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student Name:</strong> Kim Jones</td>
</tr>
<tr>
<td><strong>Grade:</strong> 7</td>
</tr>
<tr>
<td><strong>Date:</strong> 1/15/2015 Current Tier: 2</td>
</tr>
<tr>
<td><strong>Assessment Used:</strong> STAR Reading</td>
</tr>
<tr>
<td><strong>Student's score on first assessment administered:</strong> 417</td>
</tr>
<tr>
<td><strong>Student's score on last assessment administered:</strong> 450</td>
</tr>
<tr>
<td><strong>Fall benchmark expectation:</strong> 696</td>
</tr>
<tr>
<td><strong>Spring benchmark expectation:</strong> 790</td>
</tr>
</tbody>
</table>

**Step 1: Determine Typical ROI**

<table>
<thead>
<tr>
<th>Spring benchmark expectation</th>
<th>Fall benchmark expectation</th>
<th>Number of weeks</th>
<th>Typical ROI (slope)</th>
</tr>
</thead>
<tbody>
<tr>
<td>790</td>
<td>696</td>
<td>36</td>
<td>2.61</td>
</tr>
</tbody>
</table>

**Step 2: Determine Student ROI**

<table>
<thead>
<tr>
<th>Score on last assessment administered</th>
<th>Score on first assessment administered</th>
<th>Number of weeks</th>
<th>Student ROI (slope)</th>
</tr>
</thead>
<tbody>
<tr>
<td>450</td>
<td>417</td>
<td>18</td>
<td>1.83</td>
</tr>
</tbody>
</table>

**Step 3: Compare Student ROI to Typical ROI**

<table>
<thead>
<tr>
<th>Typical ROI</th>
<th>x</th>
<th>Student ROI (slope)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.61</td>
<td>x</td>
<td>2</td>
</tr>
<tr>
<td>2.61</td>
<td>x</td>
<td>1.5</td>
</tr>
</tbody>
</table>

If the team answers “yes”, consider a change in intervention:

- Increasing frequency of intervention sessions
- Changing intervention
- Changing intervention provider
- Changing time of day intervention is delivered
- Increasing intensity (Tier) of intervention

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Because Kim’s rate of improvement is less than an aggressive or reasonable ROI, the school-level team continues the gap analysis process. This will help determine the rate at which Kim needs to improve to close the gap, and/or the length of time it will take her to close the gap at her current ROI. From here, the educational team can make recommendations for Kim’s instructional plan.

**Gap analysis worksheet example**

For an additional example of ROI and gap analysis, see pages 65-67 and 75-77 in *The RTI Approach to Evaluating Learning Disabilities*, Kovaleski, VanDerHeyden, and Shapiro (2013).
Citations


