

# Calculating Rate of Improvement (ROI)

MTSS Implementers' Forum

Michael Minor

October 19, 2016



Pennsylvania Training and Technical Assistance Network

## PaTTAN's Mission

The mission of the Pennsylvania Training and Technical Assistance Network (PaTTAN) is to support the efforts and initiatives of the Bureau of Special Education, and to build the capacity of local educational agencies to serve students who receive special education services.

## PDE's Commitment to Least Restrictive Environment (LRE)

Our goal for each child is to ensure Individualized Education Program (IEP) teams begin with the general education setting with the use of Supplementary Aids and Services before considering a more restrictive environment.

## Calculating Rate of Improvement

[Rate of Improvement.com](http://RateofImprovement.com)

[ChartDog](#)

[Frequency Rate Graphic Template](#)



## Calculating Rate of Improvement

### Why ROI?

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- RTII is about identifying whether a student responds or does not respond to instruction and intervention
- Key assumption – fidelity of core instruction and intervention must be strong for ROI to have meaning
- Requires determining a student's **Rate** of Response to Instruction and Intervention
- Determining Response involves two key items against peer expectations:
  - How LOW?
  - How SLOW?

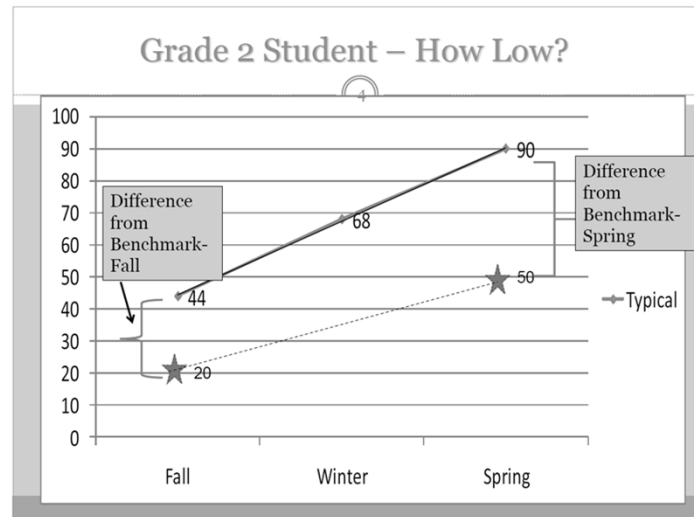
## Calculating Rate of Improvement

### How Low?

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- How Low = Level
  - How different is the student from their peers in terms of reaching the expected **benchmark scores**?
- Benchmark Scores
  - Cut scores that mark predicted low risk category
  - Represent the **minimum** score students should achieve
  - National vs local benchmarks

## Calculating Rate of Improvement



## Calculating Rate of Improvement

Grade 2- How Slow? Or  
Rate of Improvement (ROI)

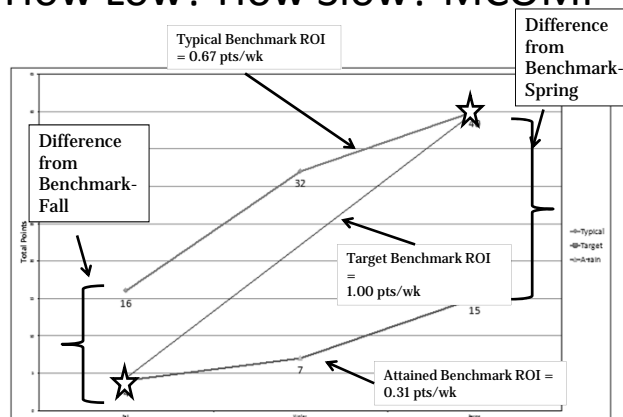
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- How Slow?
  - How different is the student from their peers in terms of the **Rate of Improvement** for expected **benchmark scores**?
  - How different is the student from their peers in terms of the **Rate of Improvement** for **progress monitoring** scores?
- ROI = Change Over Time
- Important Terms
  - Typical ROI = From benchmark to benchmark
  - Target ROI = From starting score of student to benchmark of typical benchmark
  - Attained ROI = From starting score of student to ending score of student

## Key Terms in Rate of Improvement (ROI)

- **TYPICAL Rate of Improvement (ROI) (Growth)**
  - Expected rate of progress of students from benchmark to benchmark
  - Expected rate of progress of students compared to ROI of peers in progress monitoring
- **TARGET Rate of Improvement (ROI) (Growth)**
  - Rate of improvement needed from the starting point of the target student to the next benchmark point
  - Rate of improvement needed from the starting point of the target student to reach individual goal in progress monitoring
- **ATTAINED Rate of Improvement (ROI) (Growth)**
  - Rate of improvement (slope) actually attained by the target student

### Grade 2 Student – How Low? How Slow? MCOMP



Shapiro

## Results: Benchmark ROI

- Typical ROI

Fall to Spring  $(40 - 16)/36 = 0.67$  pts/wk

- Target ROI

Fall to Spring  $(40 - 4)/36 = 1.00$  pts/wk

- Attained ROI

Fall to Spring  $(15 - 4)/36 = 0.31$  pts/wk

- Student is making progress over time (increasing)
- Student is moving at slower rate than typical peers
- Student is NOT closing the gap between himself and peers

## Practice: Calculate Benchmark ROI



### Grade 3 DIBELS Benchmark

Fall	77
Winter	92
Spring	110

### Grade 3 Attained Scores

Fall	40
Winter	56
Spring	71

### Calculate Typical ROI, Target ROI, Attained ROI

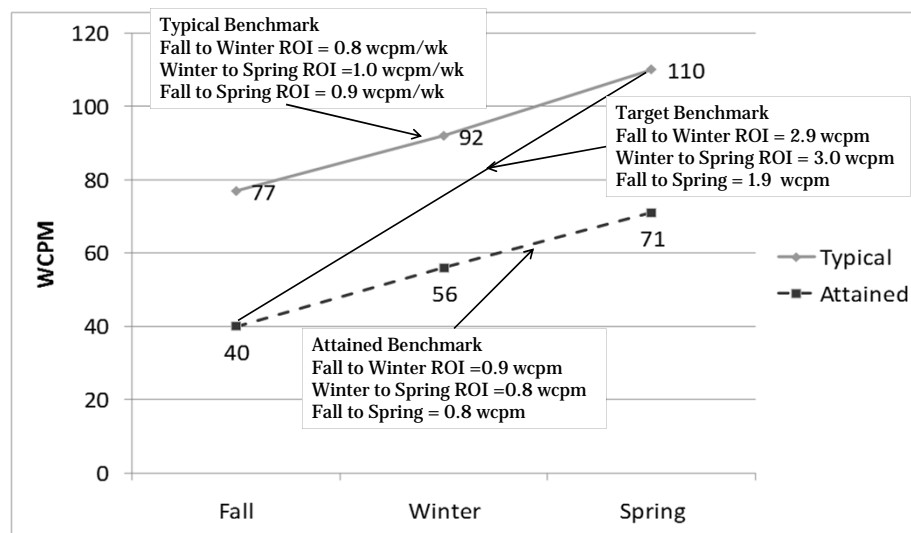
- ☐ Fall to Winter
- ☐ Winter to Spring
- ☐ Fall to Spring

## Results: Benchmark ROI

- Typical ROI
  - Fall to Winter  $(92 - 77)/18 = 0.8$  wcpm/wk
  - Winter to Spring  $(110 - 92)/18 = 1.0$  wcpm/wk
  - Fall to Spring  $(110 - 77)/36 = 0.9$  wcpm/wk
- Target
  - Fall to Winter  $(92 - 40)/18 = 2.9$  wcpm/wk
  - Winter to Spring  $(110 - 56)/18 = 3.0$  wcpm/wk
  - Fall to Spring  $(110 - 40)/36 = 1.9$  wcpm/wk
- Attained ROI
  - Fall to Winter  $(56 - 40)/18 = 0.9$  wcpm/wk
  - Winter to Spring  $(71 - 56)/18 = 0.8$  wcpm/wk
  - Fall to Spring  $(71 - 40)/36 = 0.9$  wcpm/wk
- Student moving at same rate as peers but at low level.
- Student NOT closing the gap between themselves and peers.

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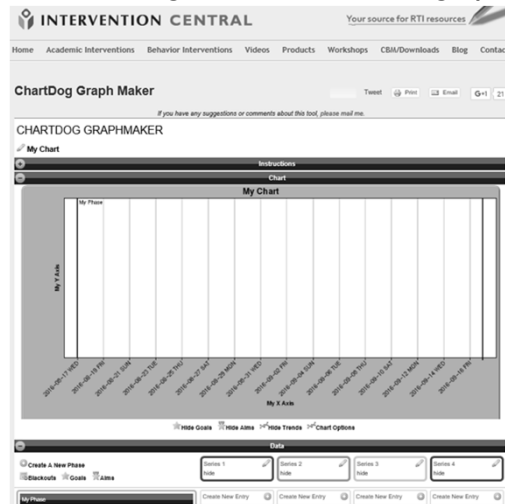
## Graphic Results



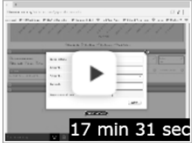
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# ChartDog

<http://www.interventioncentral.org/teacher-resources/graph-maker-free-online>




## PaTTAN Resources



**Data Entry**  
This video will review how to enter data in ChartDog and calculate rate of improvement.  
By Karen Brady  
1 month(s) ago | 0 Views

17 min 31 sec


★★★★★



**ChartDog Overview**  
This video highlights the capabilities of ChartDog, including calculating rate of improvement.  
By Karen Brady  
1 month(s) ago | 3 Views

8 min 32 sec

★★★★★



**Account Creation**  
This video will show viewers how to create a free account so data can be saved and updated throughout the course of an academic... read more »  
By Karen Brady  
1 month(s) ago | 0 Views

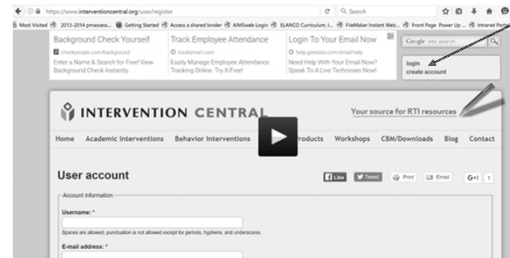
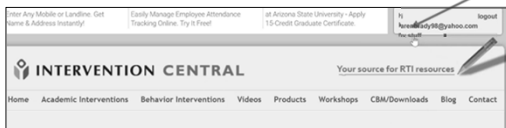
3 min 19 sec

★★★★★



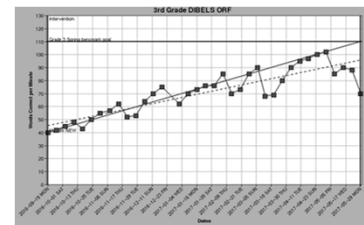
## Account Set-Up

- Go to [www.interventioncentral.org](http://www.interventioncentral.org)
- Click on “create account” – it is free!
  - Enter a user name and password
- Click on “my stuff” after logging in
  - These are your saved charts



## Using ChartDog

- Uses linear regression/Ordinary Least Squares
  - Mathematical process for establishing the straight line that cuts through all the data points and establishes the LINEAR TREND in the data (attained ROI calculation)
- Use ChartDog when progress monitoring in behavior, math, reading, writing, etc.
- Provides a goal line, trend line, and aim line
- Remember to multiply the Slope by 7 for a weekly ROI
  - The chart calculates daily ROI

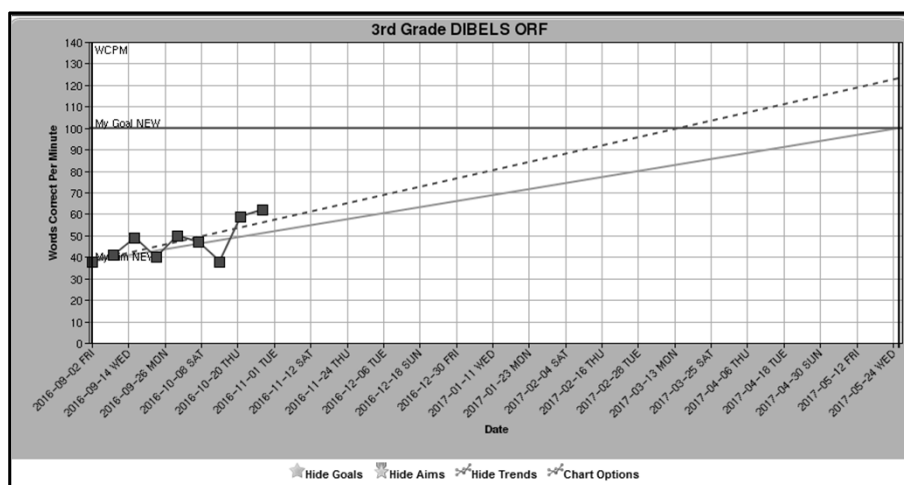


## Let's Practice!

- Dates of Intervention: 9/2/16 – 5/26/17
- End of 3<sup>rd</sup> grade benchmark is 100 words correct per minute
- Fall benchmark is 38 words correct per minute
- Data set:
 

9/2	38	9/30	50	10/28	62
9/9	41	10/7	47		
9/16	49	10/14	38		
9/23	40	10/21	59		
- What is the slope?

## Student Results



**The slope is 2.24 wcpm.**

## Contact Information

[www.pattan.net](http://www.pattan.net)

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Tom Wolf, Governor

Marianne Dudek  
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# Toward the Use of RtII for SLD Determination: A Discussion of Why and How

MTSS Implementers' Forum

Michael Minor

October 19, 2016



Pennsylvania Training and Technical Assistance Network

## Purpose for Today's Forum

- Affirm PDE/BSE's position that we encourage districts to move towards the use of RtII for SLD determination.
- Discuss contextual factors surrounding the use of RtII for SLD determination.
- Generate specific steps that will move the field forward towards the use of RtII for SLD determination.

## Why RtII for SLD Determination?


- Better process for accurate identification of students with specific learning disabilities.
- More than SLD identification, it's educational reform and school improvement
- Authentic teaming, collaboration, and coordination of tiered support
- Opportunities for greater parent involvement
- Other?

## Use of RtII for SLD Determination Status in PA

- Expert Committees Expanded RtII/SLD Determination to Writing and Mathematics (K-12) in 2015-2016
- 36 Elementary Schools Approved for RtII/SLD Reading
- 2 Elementary Schools Approved for RtII/SLD Math
- Modifications to RtII/SLD Application and Renewal Process (visit the PaTTAN website)


## Application for Approval

Using RtII for SLD  
Determination


<b>Using Response to Instruction and Intervention (RtII) for SLD Determination School Building Application (K-12) for Approval</b>
<p>Individual school teams (K-12) may seek approval to use RtII for SLD Determination specific to the areas of READING, WRITING and/or MATHEMATICS at this time. The application process requires that schools provide sufficient evidence of fidelity of RtII implementation both within and across 9 key indicators. Descriptions and scoring criteria are provided for each indicator, as well as the total score needed for obtaining RtII/SLD Approval. A scoring guide will be used to evaluate each application.</p>
<p><b>Requested Contact Information:</b></p> <ol style="list-style-type: none"> <li>1. Contact Person:</li> <li>2. Email:</li> <li>3. School Building:</li> <li>4. School District:</li> <li>5. Intermediate Unit MTSS/RtII Consultant:</li> <li>6. Date of facilitated/guided discussion with Intermediate Unit or PaTTAN consultant: _____</li> <li>7. <b>We are seeking approval for</b> <input type="checkbox"/> MATH <input type="checkbox"/> READING <input type="checkbox"/> WRITING</li> <li>8. Grade span for which you are seeking approval:</li> </ol>
<p><b>Prior to Completing this Application:</b></p> <p>Each school <b>must</b> send an email to their respective PaTTAN MTSS Lead Consultant - Dr. Jennifer Collins, PaTTAN Harrisburg, <a href="mailto:jcollins@pattan.net">jcollins@pattan.net</a>; Mrs. Marianne Dudek, PaTTAN East, <a href="mailto:mdudek@pattan.net">mdudek@pattan.net</a>; or Mr. Mike Minor, PaTTAN Pittsburgh, <a href="mailto:mminor@pattan.net">mminor@pattan.net</a>. Each applicant must state the school's intent to apply for approval to use RtII for SLD Determination, <b>prior to September 30<sup>th</sup></b> the year before implementation.</p>

# Renewal/Re-Approval Process

Using RtII for SLD  
Determination



**Using Response to Instruction and Intervention (RtII) for SLD Determination  
School Building Application for RENEWAL/RE-APPROVAL STATUS**

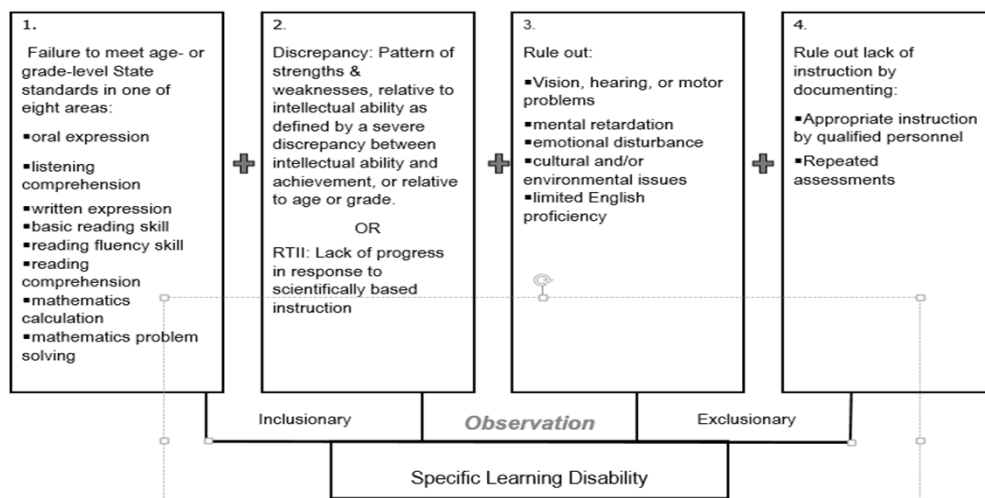
**Requested Contact Information:**

- Contact Person:
- Email:
- School Building:
- School District:
- Intermediate Unit MTSS/RtII Consultant:
- Date of facilitated/guided discussion with Intermediate Unit or PaTTAN consultant: \_\_\_\_\_
- We are seeking renewal/re-approval status for**     MATH     READING     WRITING
- Grade span for which you are seeking renewal/re-approval status:

**Directions for Completing this Renewal/Re-Approval Application:**

- This renewal/re-approval application should be completed by the core MTSS building level team. Please note the required signatures in the box below.
- Each school MUST partner with their local Intermediate Unit and/or PaTTAN Consultant and conduct a comprehensive review of this application.**
- Please use the comment box at the bottom of each page to describe any changes or adjustments that have occurred since the initial approval. This may include any curriculum and/or intervention changes.
- Please type text directly into the application.** Supporting evidence such as scanned documents or narrative responses typed in a word document may be submitted as an attachment. For each attachment(s), there must be a heading that explains the revision. Please send completed

## Four Criteria for Determining Specific Learning Disability



## Eligibility Determination

The evaluation team must establish that the student....

- ✓ is deficient in level of achievement
- ✓ is deficient in rate of improvement
- ✓ does not have other factors related for underachievement
- ✓ has not experienced lack of instruction

## Determination of Specific Learning Disabilities

### **Additional Procedures for Identifying Children With Specific Learning Disabilities**

§ 300.307 Specific learning disabilities.

- (a) *General.* A state must adopt, consistent with § 300.309, criteria for determination whether a child has a specific learning disability as defined in § 300.308(c)(10). In addition, the criteria adopted by the State-
- (1) Must not require the use of a severe discrepancy between intellectual ability and achievement for determining whether a child has a specific learning disability, as defined in § 300.8(c)(10);
  - (2) Must permit the use of a process based on the child's response to scientific, research-based intervention; and
- (b) *Consistency with State criteria.* A public agency must use the State criteria adopted pursuant to paragraph (a) of this section in determinate whether a child has a specific learning disability.

## A National Perspective

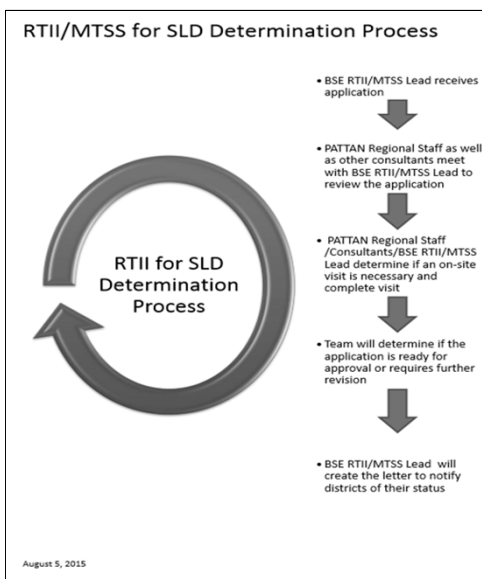
33 states allow the use of RTI for identifying SLD (including PA)

11 states require RTI for identifying SLD

8 states prohibit use of ability-achievement discrepancy for identifying SLD

From Hauerwas, Brown, & Scott (2013). Specific learning disability and response to intervention: State-level guidance. *Exceptional Children*, 80, 101-120.

## RtII/SLD Approval Process



Each school must send an email to their respective PaTTAN MTSS Lead Consultant:

Dr. Jennifer Collins, PaTTAN Harrisburg,

[jcollins@pattan.net](mailto:jcollins@pattan.net)

Mrs. Marianne Dudek, PaTTAN East,

[mdudek@pattan.net](mailto:mdudek@pattan.net)

Mr. Mike Minor, PaTTAN Pittsburgh,

[mminor@pattan.net](mailto:mminor@pattan.net)

Each applicant must state the school's intent to apply for approval to use RtII for SLD Determination, prior to September 30th the year before implementation.



## Team Reflection Time



- **RtII/SLD Eligibility Determination (Item 7: RtII/SLD Application)**
- Review discussion items and required evidence
  - What are your thoughts about what your school has in place and what may be missing?
  - What are your next steps?
  - Use action plan to document
- Group share out



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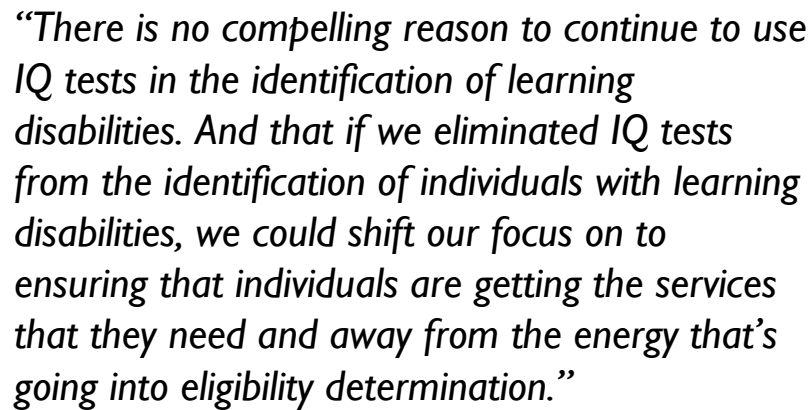
## Team Reflection Time



- **Review the remaining items in the *Using Response to Instruction and Intervention (RtII) for SLD Determination School Building Application (K-12) for Approval***
- Review discussion items and required items
  - What are your thoughts about what your school has in place and what may be missing?
  - What are your next steps?
  - Use action plan to document
- Group share out



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*“There is no compelling reason to continue to use IQ tests in the identification of learning disabilities. And that if we eliminated IQ tests from the identification of individuals with learning disabilities, we could shift our focus on to ensuring that individuals are getting the services that they need and away from the energy that’s going into eligibility determination.”*

**Sharon Vaughn, 2002**

## Small & Whole Group Discussion

*Given our discussion today, why would/should a school apply to use RtII for SLD Determination?*

*Identify 2-3 specific steps that we can each take to move a given school toward RTII/SLD Approval.*

## Resources

- Kovalski, J. F., VanDerHeyden, A. M., & Shapiro, E.S. (2013). *The RTI approach to evaluating learning disabilities*. New York: Guilford.
- PaTTAN website (MTSS/RtII Page)
- National RtI Center
- RtI Action Network
- National Center for Intensive Intervention
- <http://rtinetwork.org/getstarted/sld-identification-toolkit>

## Citations

- Fletcher, J. M., & Vaughn S. (2009). Response to intervention: Preventing and remediating academic difficulties. *Child Development Perspectives*, 3, 30-37.
- Francis, D. J., Fletcher, J. M., Steubing, K.K., Lyon, G. R., Shawitz, B. A., & Shawitz, S. E. (2005). Psychometric approaches to the identification of LD: IQ and achievement scores are not sufficient. *Journal of Learning Disabilities*, 38, 98-108.
- Mann, L. (1979). *On the trail of process*. New York: Grune & Stratton.
- Miciak, J., Fletcher, J. M., Stuebing, K. K., Vaughn, S., & Tolac, T.D. (2014). Patters of cognitive strengths and weaknesses: Identification rates, agreement and validity for learning disabilities identification. *School Psychology Quarterly*, 29, 21-37.
- Shepard, L. (1980). An evaluation of the regression discrepancy method for identifying children with learning disabilities. *Journal of Special Education*, 14, 79-91.
- Siegel, L. S. (1992). An evaluation of the discrepancy definition of dyslexia. *Journal of Learning Disabilities*, 25, 618-629.
- Stuebing, K. K., Fletcher, J. M., LeDoux, J. M., Lyon, G. R., Shaywitz, S. E., & Shaywitz, B. A. (2002). Validity of IQ-discrepancy classifications of reading disabilities: A meta-analysis. *American Educational Research Journal*, 39, 469-518.
- Vaughn, S., & Linan-Thompson, S. (2003). What is special about special education for students with learning disabilities? *Journal of Special Education*, 37, 140-147.

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