Multi-tiered Intervention Models

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National Research Center on Learning Disabilities

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Purposes of the NRCLD

- To understand how alternative approaches to identification affect who is identified.
- To investigate state and local identification policies and practices and LD prevalence.
- To provide technical assistance and conduct dissemination to enhance state and local practice in identification.
- To identify sites that effectively use responsiveness-to-intervention as a method of identification.

"I'm afraid research is our weakest area."

What are today's RTI related learner outcomes?

1. Components of RTI: What's included?
2. Uses of RTI: What decisions are made?
3. Application of RTI: What does it look like?
4. EIS and RTI: What's the connection?
5. How would one get started?

SLD Determination and IDEA 2004 (P.L. 108-446)

New language in IDEA:

"… a local educational agency may use a process that determines if the child responds to scientific, research-based intervention as a part of the evaluation procedures…."

Sec. 614(b)6B

- The language of IDEA 2004 does not specifically use the term "responsiveness to intervention (RTI)."
- In the special education research literature, the process mentioned in this language is generally considered as referring to responsiveness to intervention (RTI).
- RTI is not mandated (e.g., ". . . a local agency *may* use a process. . .").

Looking at Solutions

For every complex problem, there is a solution that is simple, neat, and wrong.

H.L. Mencken (1880-1956)

Views on RTI applications

Distinct Uses

1. Prevention (kdg & early 1st grade) (e.g., McMaster et al., O'Connor et al., Torgesen et al., Vaughn et al, Vellutino et al.)
2. Intervention for students with achievement or behavior problems
3. As a component of SLD determination (e.g., Fuchs et al.; Speece et al.)

Genesis

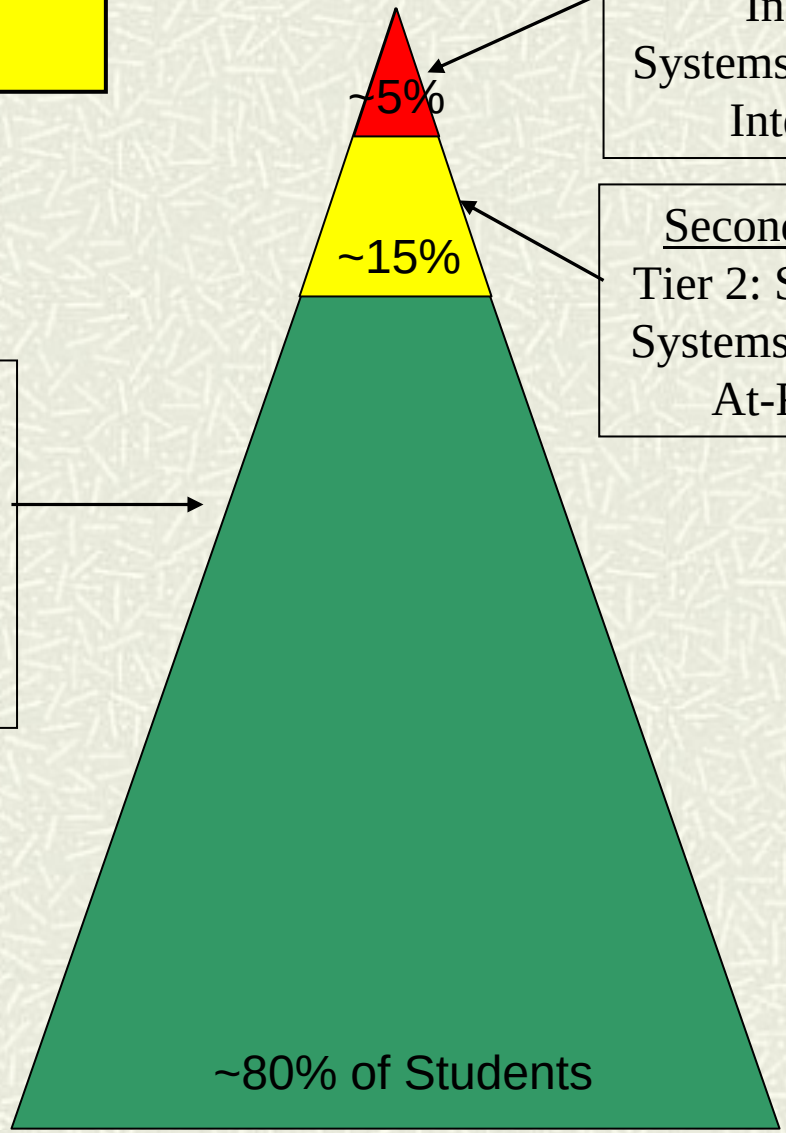
- School-wide reform
- Public health applied to education
  - Prediction
  - Inoculation, and
  - Tiered intervention
- Necessary for disability determination
- Shifting roles and responsibilities

CONTINUUM OF SCHOOL-WIDE SUPPORT

<u>Tertiary Prevention</u>: Tier 3: Specialized Individualized Systems for Students with Intensive Needs

<u>Secondary Prevention</u>: Tier 2: Specialized Group Systems for Students with At-Risk Behavior

<u>Primary Prevention</u>: Tier 1: School-/Classroom-Wide Systems for All Students, Staff, & Settings



Research Elements of RTI

- Three applications:
  - Prevent academic problems through early ID
  - Intervene with low performing students
  - Assist in identifying students with SLD
- Implementation of a scientifically-based, differentiated curriculum with different instructional methods
- Two or more tiers of increasingly *intense* scientific, research-based interventions *(Intensity* dimensions include duration, frequency and time of interventions, group size, and instructor skill level)
- Explicit decision rules for assessing learners' progress (e.g., level and/or rate)

Research Components of RTI

Commonly included:

- School-wide screening
- Progress monitoring
- Tiered interventions
- Fidelity of intervention measures (treatment integrity)

Selectively included:

- Parent involvement
- Link to IDEA procedural safeguards

What Characterizes RTI Implementation in Research Settings?

Tier 1

1. Students receive high-quality, research-based instruction by qualified staff in their *general education* setting
2. *General education* instructors and staff assume an active role in students' assessment in that curriculum (screening & progress monitoring)
3. *General education* staff conduct universal screening of (a) academics, and (b) behavior (≥ 1/yr)

Tier 2

1. School staff implement specific, research-based interventions to address the students' difficulties (Tier 2)

What Characterizes RTI Implementation in Research Settings? (continued)

5. School staff conducts continuous progress monitoring of student performance (e.g., weekly or biweekly)
6. School staff use progress monitoring data and explicit decision rules to determine interventions' effectiveness and needed modifications
7. Systematic assessment is made of the fidelity or integrity with which instruction and interventions are implemented
8. Referral for comprehensive evaluation; FAPE; due process protections

Prior Screening Work At Kindergarten (RTI symposium, Dec 2003)

Presenters: David Francis, Joe Jenkins, Deborah Speece

Discussant: Barbara Foorman

- Robust correlations link kindergarten phonological processing, alphabetic knowledge, general language ability, and print concepts to later reading acquisition.
- Yet, predicting which kindergarteners are at risk for developing RD based on these measures has proven problematic.
- Estimates of false positives: 20%-60%
- Estimates of false negatives: 10%-50%
- Alternatives: Most severe kdg only; Wait to 1st grade & progress monitor

RTI: Screening in Tier 1

- Children are assessed to specify who enters the RTI process.
- RTI success depends on accurate specification of this risk pool.
- Perfect screening would result in 100% accurate identification of “True Positives” (those who will develop reading disabilities) who will go into Tier 2 interventions and “True Negatives” (those who will not develop reading disabilities) who will be excluded from Tier 2 intervention.

(Compton, D., April 2006, NRCLD SEA conference)

Overview of Study Methods

- In 42 classes in 16 middle-TN schools, identified low study entry 1st graders.
- In October, administered a multivariate prediction battery: initial WIF, phonemic awareness, rapid naming, oral vocabulary.
- Monitored progress with WIF, each week for 5 weeks; calculated 5-week slope and level.
- At end of grade 2, administered standardized reading battery: untimed and timed measures of word identification and word attack and reading comprehension. Used the composite score across these measures to classify children as RD/non-RD.
- Applied classification tree analysis and logistic regression to classify RD/non-RD at end of grade 2, using 1st-grade prediction battery and short-term PM as predictors.

Implications for Tier 1 Screening

- For RTI to work successfully, reliable procedures for entering children into Tier 2 are required.
- This means identifying TP rates approaching 100%, with identifying a manageable risk pool by limiting FP.
- Previous kindergarten and 1st-grade studies demonstrate inadequate decision utility, where
  - some kids who develop RD are not identified for Tier 2
  - schools are stressed to provide Tier 2 intervention to many children who would not otherwise develop RD.

Implications for Tier 1 Screening

- The final model, which relied on classification tree analysis, which allows the same set of predictors to interact, yielded significantly improved classification rates.
  - Both sensitivity and specificity > 90
  - Only 3.5%-4.0% of 1st-graders entering Tier 2
  - With no FN.
- So, combination of 1st-grade screening battery of phonemic awareness, rapid naming, oral language, initial WIF, 5-week WIF Level, and 5-week WIF Slope, with decision rules based on classification tree analysis, may have the potential to push RD risk designation to a level of accuracy sufficient for RTI.

Implications for Tier 1 Screening

- Results suggest that the potential exists to develop decision rules that allow identification of the “right” children to enter Tier 2 early in 1st grade.
- Additional work is needed to replicate and extend findings.
- *Schools planning to implement an RTI approach to LD identification should put considerable thought into designing an effective system for designating a risk pool that enters Tier 2 intervention that maximizes true positives and minimizes false negatives.*

Progress Monitoring Component

1. Assessment for evaluating instructional effectiveness: students, class, school
2. Question: Benefiting from instruction?

Responsiveness Criteria

- How many measurements?
  - Heartland (2002): 1 to 3 times/week; 4 data points
  - NASDSE (2005): 2 times/week; 6 to 8 data points for decisions
  - Compton, D., Fuchs, L. & Fuchs, D., Sept 29, 2005, NRCLD Topical Forum, KCMO (Attached)
- Analysis Methods (Attached)
- What will be the numerical criterion?
  - Slope and level $\geq$ 1 SD
- Large, representative sample, not a class
- Review the cutoff scores

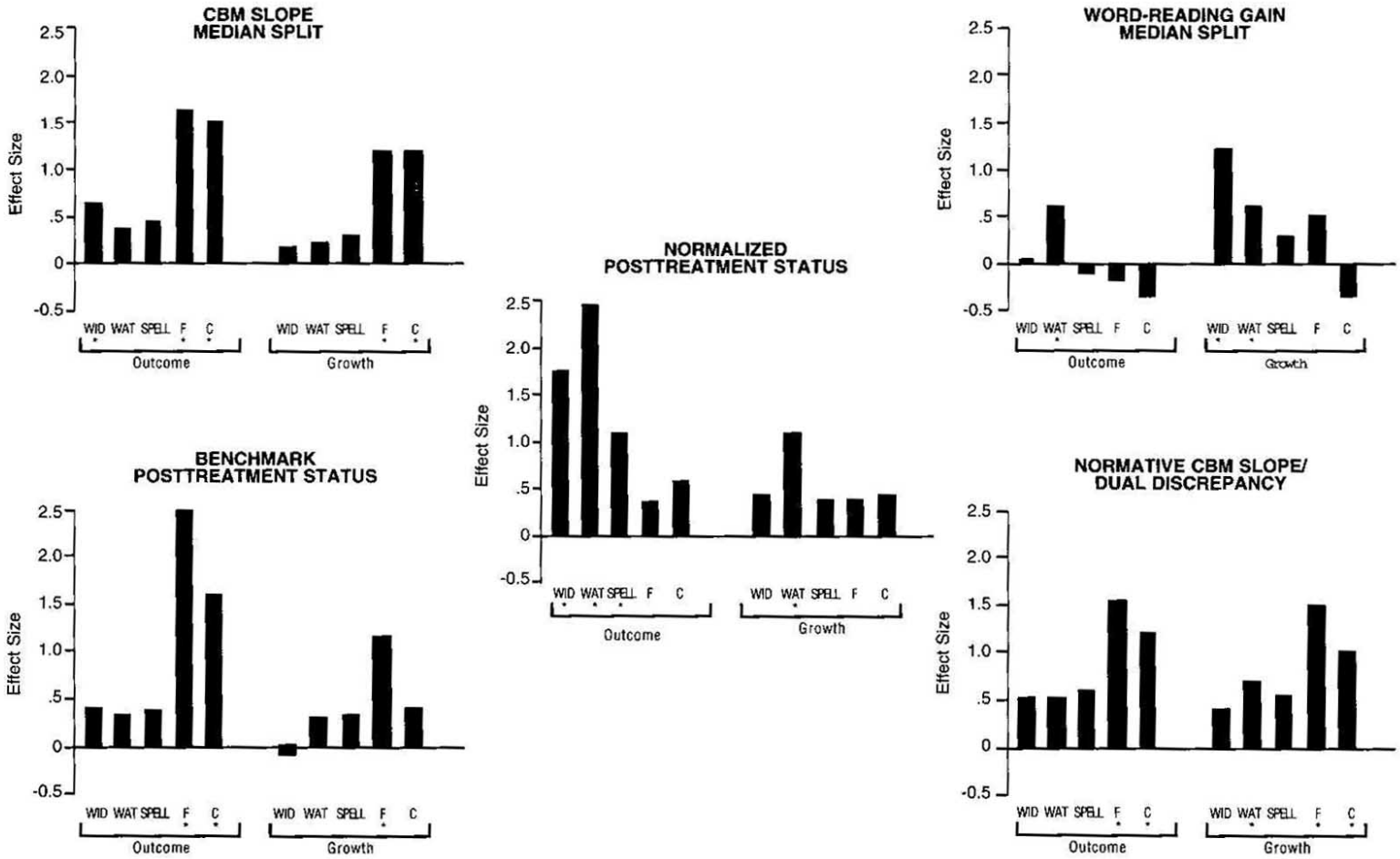
Correlations Among Slope Terms Based on 3-18 Data Points

Compton, D., Fuchs, L. & Fuchs, D., Sept 29, 2005, NRCLD Topical Forum, KCMO

Slope Estimates	Slope 9 points	Slope 18 points
Slope 3 points	.31	.19
Slope 4 points	.72	.53
Slope 5 points	.82	.63
Slope 6 points	.89	.68
Slope 7 points	.95	.73
Slope 8 points	.98	.78
Slope 9 points		.82
Slope 10 points		.86
Slope 11 points		.90
Slope 12 points		.93
Slope 13 points		.95
Slope 14 points		.97
Slope 15 points		.98
Slope 16 points		.99
Slope 17 points		.99

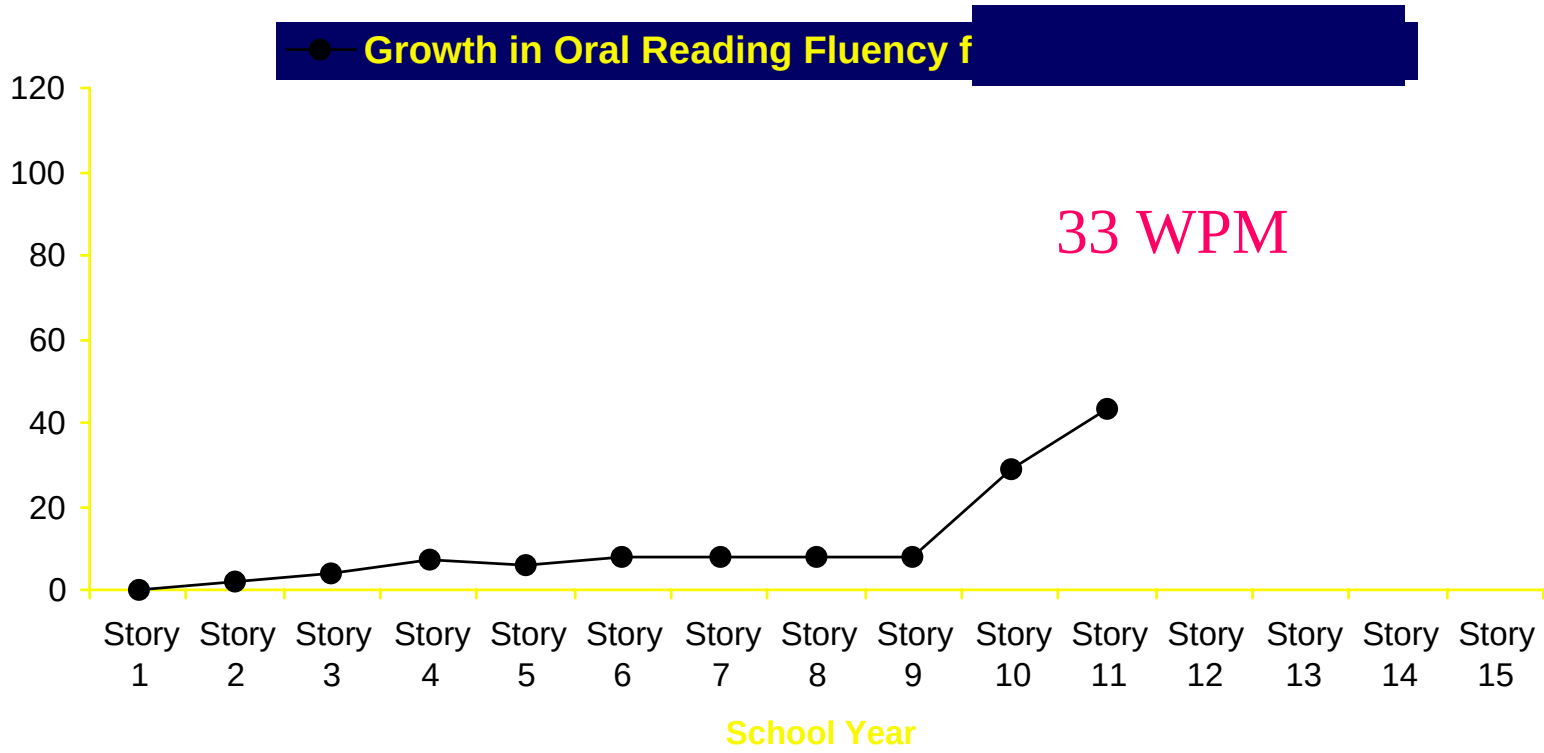
Figure 2. Effect sizes distinguishing responders from non-responders by classification criteria and measures in grade 2. Outcome and growth measures are the Woodcock Reading Mastery Test – Word Identification (WID) and Word Attack (WAT); Wechsler Individual Achievement Test – Spelling (SPELL); and the Comprehensive Reading Assessment Battery – Fluency (F) and Comprehension (C).

Fuchs, Fuchs, & Compton, 2004, *LDQ*, 27, 216 - 227.

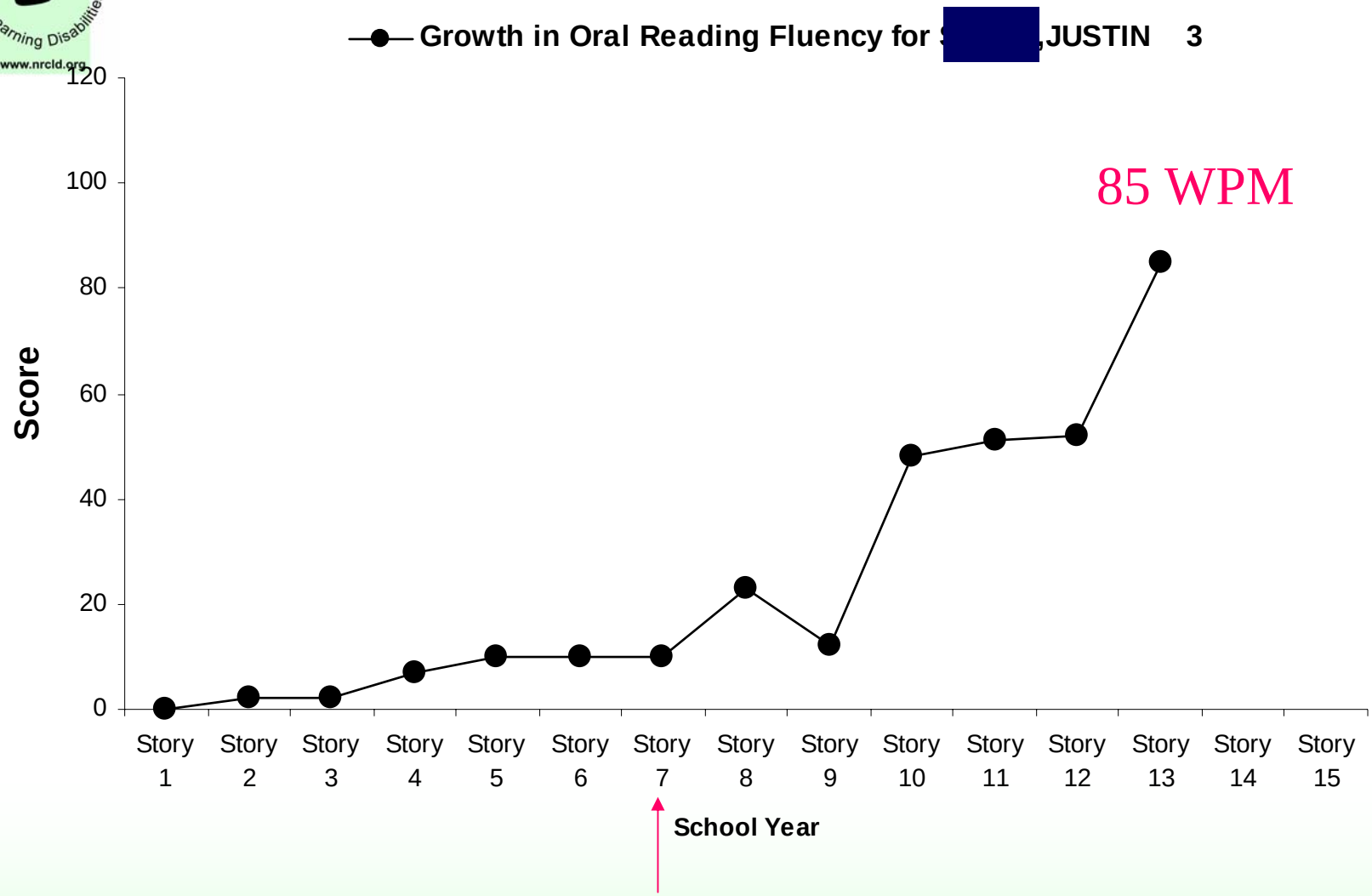


When Is Tertiary Instruction Necessary?

Patricia Mathes, September 30, 2005, NRCLD topical forum, KCMO



Mathes, 2005


Growth in Oral Reading Fluency for [redacted], JUSTIN 3
Score
120
100
80
60
40
20
0
Story 1
Story 2
Story 3
Story 4
Story 5
Story 6
Story 7
Story 8
Story 9
Story 10
Story 11
Story 12
Story 13
Story 14
Story 15
School Year
85 WPM
21 weeks

Mathes, 2005

Purposes of Assessment

SCREENING	PROGRESS MONITORING	DIAGNOSTIC
School-wide	Class/small group/ student	Individual student
Broad index	Specific academic skill or behavioral targets	Specific academic domains
Yearly/ 3x/monthly	≤ 3 wks/weekly/daily	Yearly
ID at-risk	Regroup student	ID specific student deficits
School focus	Student focus	Student focus
Class/school instr & curric decisions	Intervention effectiveness (curriculum / instr)	Selecting curric & instr methods
1st step for intervention planning	Continue or revise placement	Planning or specifying intervention

Tiered Services Component

(Use in #1 prevention and #2 intervention)

RTI as a school-wide, general education reform

- Available for all students
- Public health and community psychology tiered model
- Most research on RTI is about intervention; not SLD determination; not beyond primary grades and reading

Components of Effective Tier 1 Instruction

(National Reading Panel Report, 2000)

- Phonemic Awareness Instruction
- Word Identification and Decoding Instruction
- Fluency Instruction
- Vocabulary Instruction
- Comprehension Instruction

(Compton, D., April 2006, NRCLD SEA conference)

Tier Considerations

(Use in #1 prevention and #2 intervention)

- Decision rules for repeating tiers
- Number of interventions required
- Distinguish curricular, instructional, and combined interventions. What will you require?
- Fidelity (integrity) of intervention measures: When does an intervention delivery lack integrity? What happens next?
- Dosage question: How do we match the strength of the intervention (intensity) to student needs?

List of Questions Regarding Tier 1

- Where to initiate parental involvement?
- Identifying cut-points. Depends in part on whether purpose is prevention (cut-points would be more lenient), or identification, (cut-points would be more severe).
- Identifying appropriate measures for preschool, secondary, nonacademic domains and academic outcomes beyond basic skills.
- Whether to promote local or national norms
- Time, resources, and other administrative-logistic concerns associated with implementation.

(Compton, D., April 2006, NRCLD SEA conference)

Problem-solving and standard protocol

Assessment framework

Problem solving process as the scientific method:

1. Statement of a problem, usually in a behavioral framework
2. Generating hypotheses or testable questions
3. Testing the hypotheses
4. Checking the results and revising

Intervention framework (Use in #1 prevention and #2 intervention)

- In RTI "problem solving," relies on interventions that are *individually tailored*
- "Standard protocols" that have been shown via randomized controlled studies to improve most students' academic achievement; tested for efficacy

Tier 2 for Instructional Intensity

- Small Groups (1:1, **1:3**, 1:5, 1:10)
- 10-12 wks, 3-4x per wk, 30-60 min per session (maybe extended 20 wks+ for preventative instruction)
- Not from the classroom teacher
- In or out of the general ed classroom
- Scripted, specific intervention
- Immediate corrective feedback
- Mastery of content before moving on
- Frequent progress monitoring

List of Questions Regarding Tier 2

- What constitutes more comprehensive and intensive assessment and where does it fit?
- What is a meaningful taxonomy of intervention intensity that distinguishes level 1 from 2; and 2 from 3?
- What measures and procedures will document its intensity, fidelity, and effectiveness?
- What is meant by “responsiveness”? Pre/post gain on a commercial achievement test? If so, how will progress monitoring be accomplished? How will criteria for adequate growth be established? How will teaching to the test be minimized?
- One-to-one individualized instruction or small group instruction? If small group, how small? How large a caseload per tutor?

(Compton, D., April 2006, NRCLD SEA conference)

Nature of Tier 3 Special Education

Reform special education so it represents a viable and important tier within the 3-tiered system

- Individualized programs formulated inductively using CBM
- Intensive instruction conducted individually for sufficient duration to be effective
- Criteria specified and monitored to exit students so that placement is flexible and used only as required

(Compton, D., April 2006, NRCLD SEA conference)

Special-ed-like Instruction

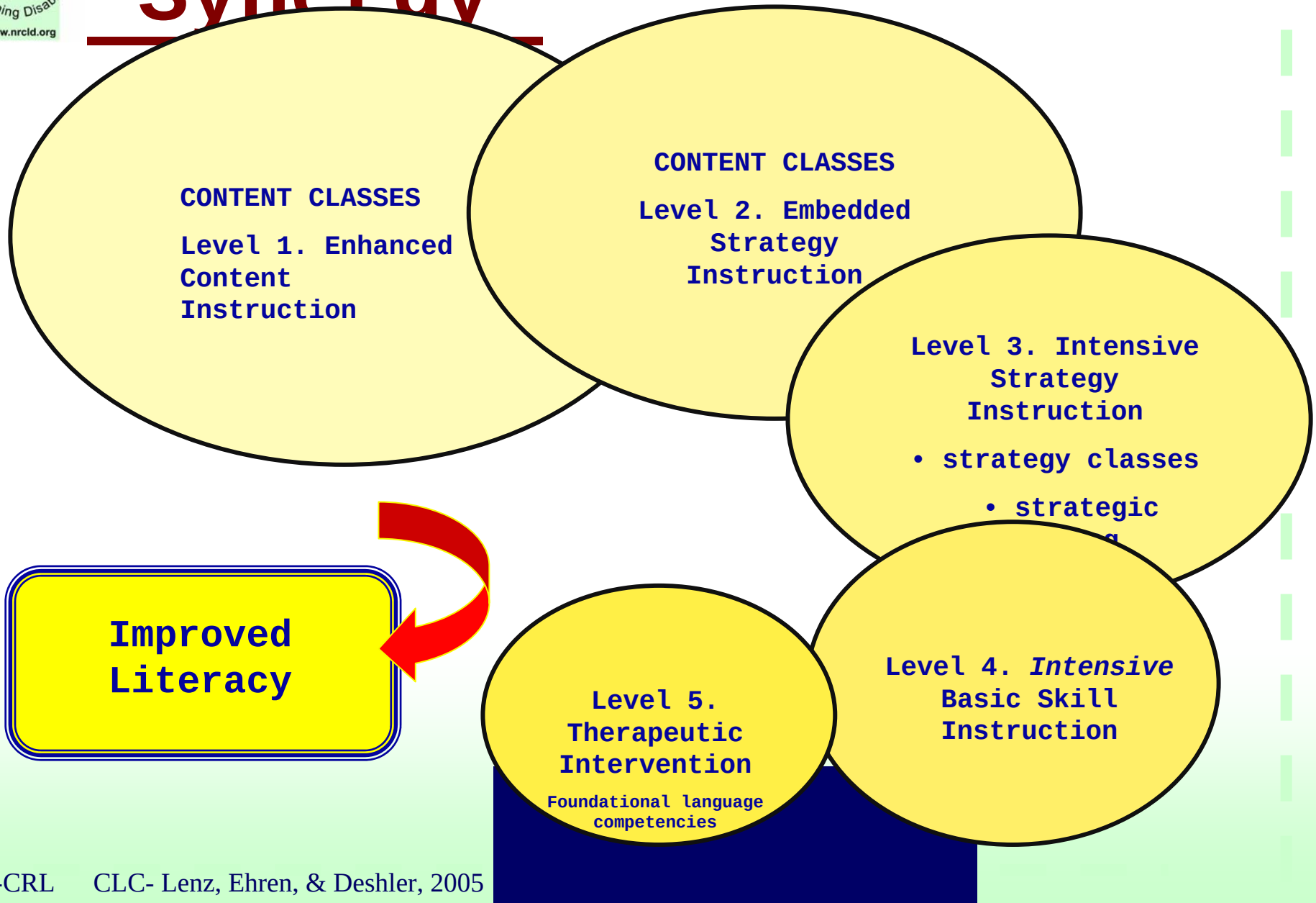
MacMaster/Fuchs

- Small group (1:1, 1:3)
- Curriculum with the best evidence of efficacy
- Efficacious instructional practices
  - Immediate corrective feedback
  - Mastery of content before moving on
  - Setting goals; self monitoring and graphical display
- More time on difficult activities
- More opportunities to respond
- Fewer transitions
- Special relationship with tutor; best qualified for delivering instruction

Distinguishing among Tiers: Specificity and Intensity

1. Size of the instructional group
2. Immediacy of corrective feedback
3. Mastery requirements of content
4. Amount of time on difficult activities
5. Number of response opportunities
6. Number of transitions among contents or classes
7. Specificity and focus of curricular goals
8. **Duration of the intervention (weeks)**
9. **Frequency with which the intervention is delivered in a day or week**
10. **Amount of time focusing on the intervention (minutes)**
11. Instructor's skill level

Content Literacy "Synergy"



Intense - Explicit Instruction

LEVEL 1

- Cue
- Do
- Review

LEVEL 2

- "I do it!" (Learn by watching)
- "We do it!" (Learn by sharing)
- "Ya'll do it!" (Learn by sharing)
- "You do it! (Learn by practicing)

LEVEL 3/4/5

- Pretest
- Describe
  - Commitment (student & teacher)
  - Goals
  - High expectations
- Model
- Practice and quality feedback
  - Controlled and advanced
- Posttest & reflect
- Generalize, transfer, apply

EIS & RTI small group & individual interventions: Evidence for choices

1. Verified through the What Works Clearinghouse
2. Independent reviews by agencies (e.g., Florida center on reading research; Oregon state department of education)
3. Meta-analysis support (e.g., Kavale, 2005; Swanson, 1999; Swanson & Sachse, 2000)
4. Two or more experimental, randomized control group trials support efficacy
5. Two or more effectiveness studies

Fidelity of Implementation Component

- Treatment integrity: Accuracy and consistency
- Promote as an affirming professional development activity “we want to do the best we can”
- School - interventions - teacher level
- Three dimensions of fidelity checks:
  - Method: How?
  - Frequency: How often?
  - Support system: So what’s next?
    - Professional development
    - Resource allocation

RTI as a SLD Determination Component

- Assessment information for decision making about special education (disability and need) status
- Should be the highest standard of implementation
- Standard intervention protocol (8 week)
- High frequency of progress monitoring
- Explicit decision rules (e.g., final status or slope)
- High degree of treatment integrity
- RTI is one component; an initial threshold

Topic: Early Intervening Services

Understand an important linkage between RTI and EIS

1. IDEA language
2. Considerations
3. Contrast to RTI

EIS and IDEA Reauthorization (P.L. 108-446)

New language in IDEA:

"A local educational agency (LEA) may not use more than 15% of the amount such agency receives under this part (Part B)… to develop and implement coordinated, early intervening services …

for students in kindergarten through grade 12 (with particular emphasis on students in kindergarten through grade 3) who do not meet the definition of a child with a disability…

but who need additional academic and behavioral support to succeed in a general education environment."

Sec. 613(f)(1)

EIS and IDEA Reauthorization (P.L. 108-446)

EIS Activities:

The funds are intended to build school staff capacity for delivering **scientifically-based academic and behavioral interventions** including "**scientifically-based** literacy instruction and, … "providing *educational and behavioral evaluations, services, and supports*, including **scientifically-based literacy instruction**."

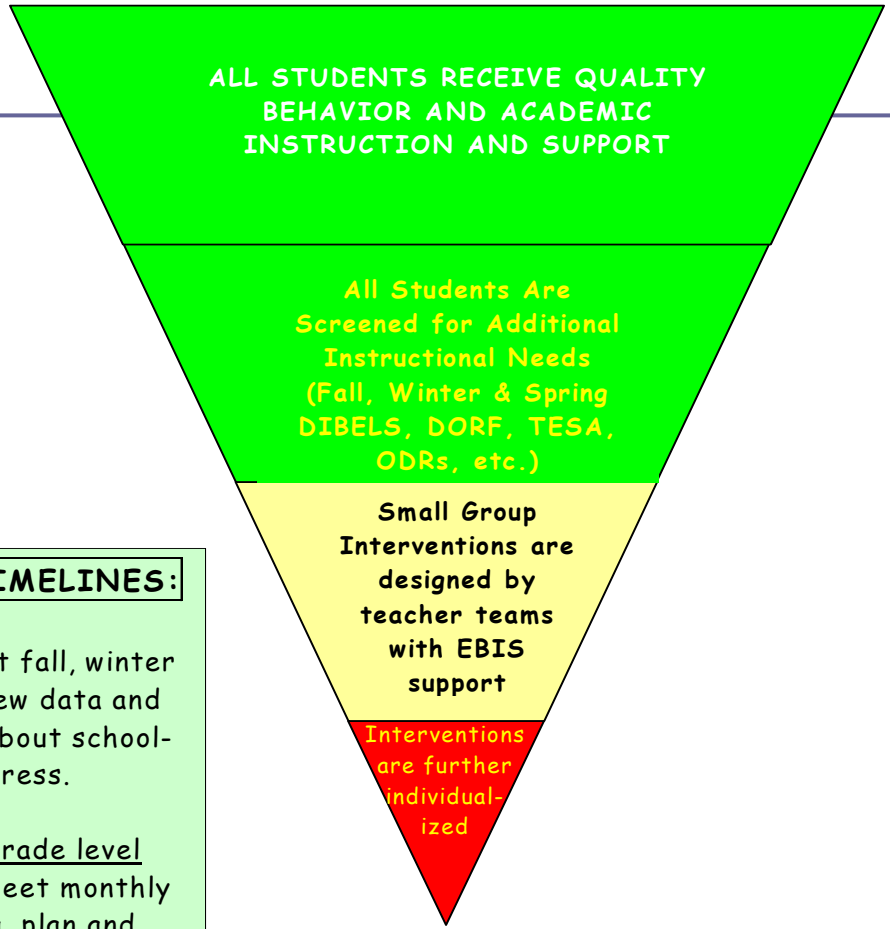
Sec. 613(f)(2)

EIS & RTI comparisons

1. EIS and RTI emphasize scientifically based interventions; not “home grown”
2. EIS is **mandated** for districts with disproportionate representation of students in disability groups or minorities with disabilities.
3. Under EIS, the LEA must annually report on students served; RTI does not have such a provision.
4. EIS is not linked with SLD determination procedures. RTI, on the other hand, is.
5. RTI is conceptualized as school-wide. EIS is focused as support services.

Topic: Implementation

EBIS EARLY IDENTIFICATION PROCESS
Tigard-Tualatin School District, Tigard, Oregon



Grades 1-5 DECISION RULES

80% Decision Rule:
If less than 80% of students are meeting benchmarks, review core program(s)

20% Decision Rule:
Students below benchmark with academic skills that place them in the lowest 20% compared to their peers and/or with chronic behavior needs* are placed in small group instruction

Individualize Instruction Rule:
When students fail to progress after two (2) consecutive small group interventions

Change Small Group or Individual Interventions Rule:
When progress data is below aimline on three (3) consecutive days, or when six (6) data points produce a flat or a decreasing trendline

Refer for Special Education Evaluation Rule:
When students fail to progress after one individually-designed intervention

TEAMWORK TIMELINES:

EBIS teams meet fall, winter & spring to review data and make decisions about school-wide progress.

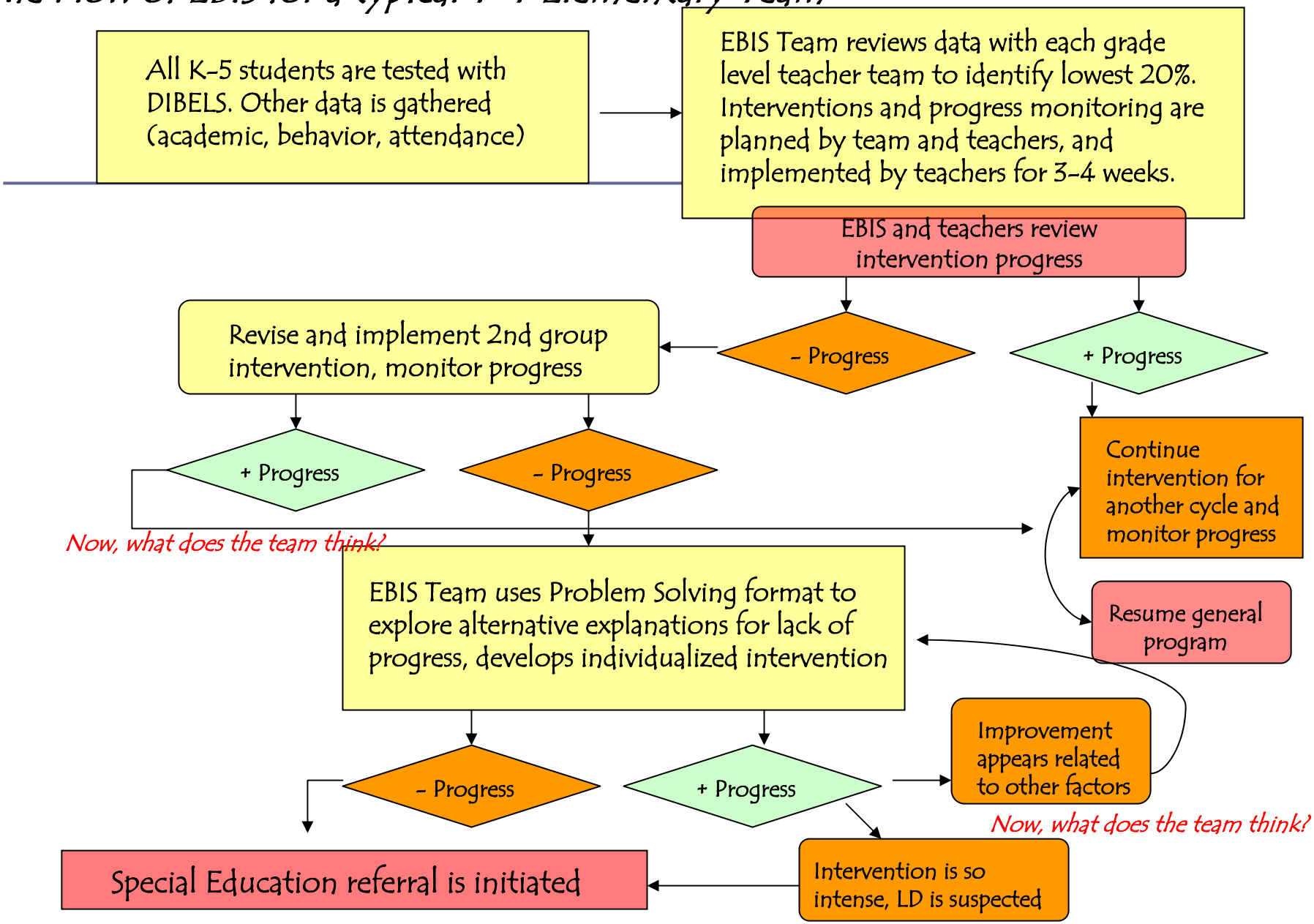
EBIS teams/Grade level teacher teams meet monthly to review data, plan and adjust interventions.

*More than 5 absences or more than 3 counseling or discipline referrals in a 30 day period

Team membership

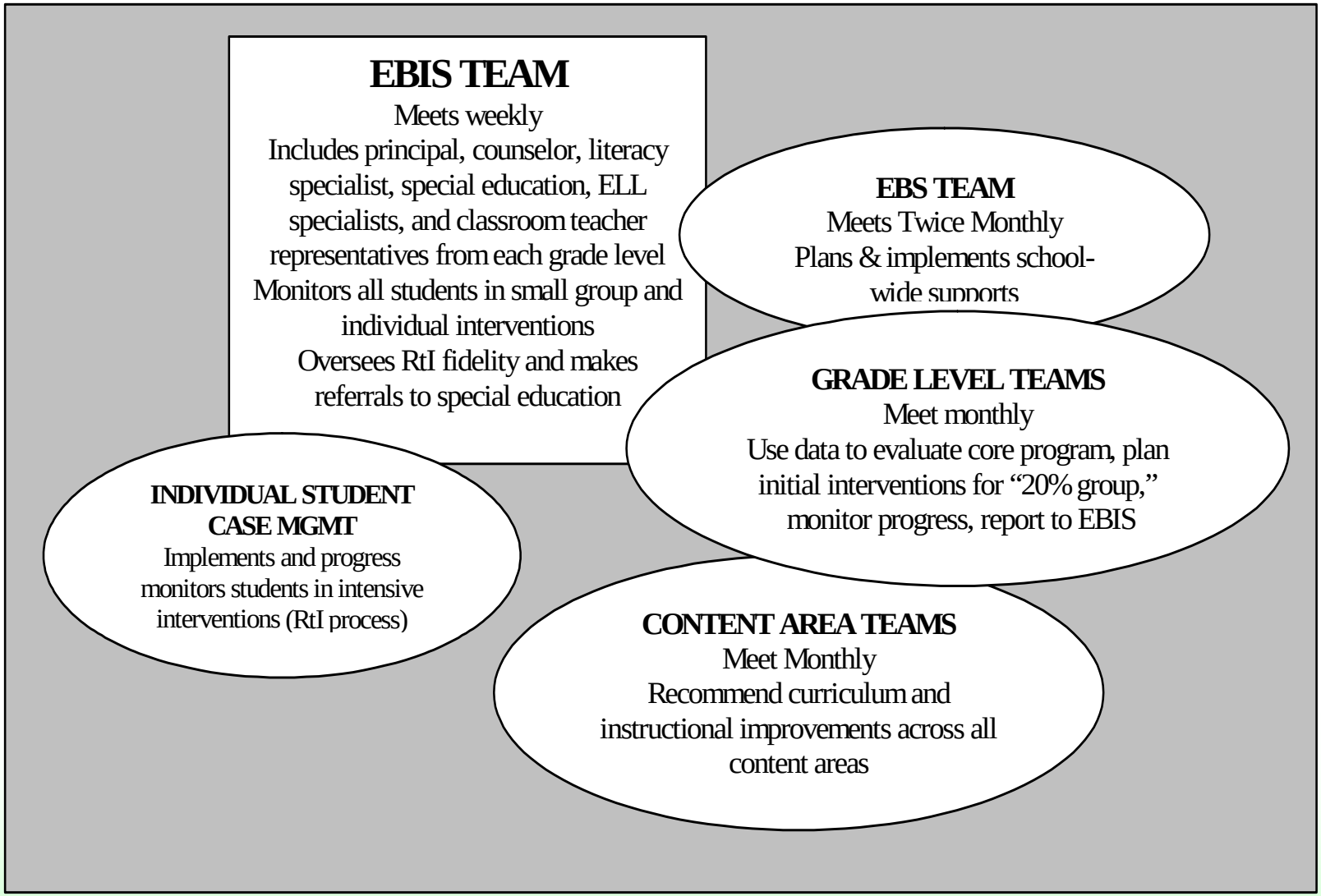
- Principal Leadership
- Classroom teachers
- Literacy/Title 1 Specialist
- School Counselor
- Learning/ESL Specialists
- Classified staff

The Flow of EBIS for a typical T-T Elementary Team



From: Effective Behavior and Instructional Support: A District Model for Early Identification and Prevention of Reading and Behavior Disabilities, Sadler & Sugai, 2006, in press. Do not use without permission from author (csadler@ttsd.k12.or.us).

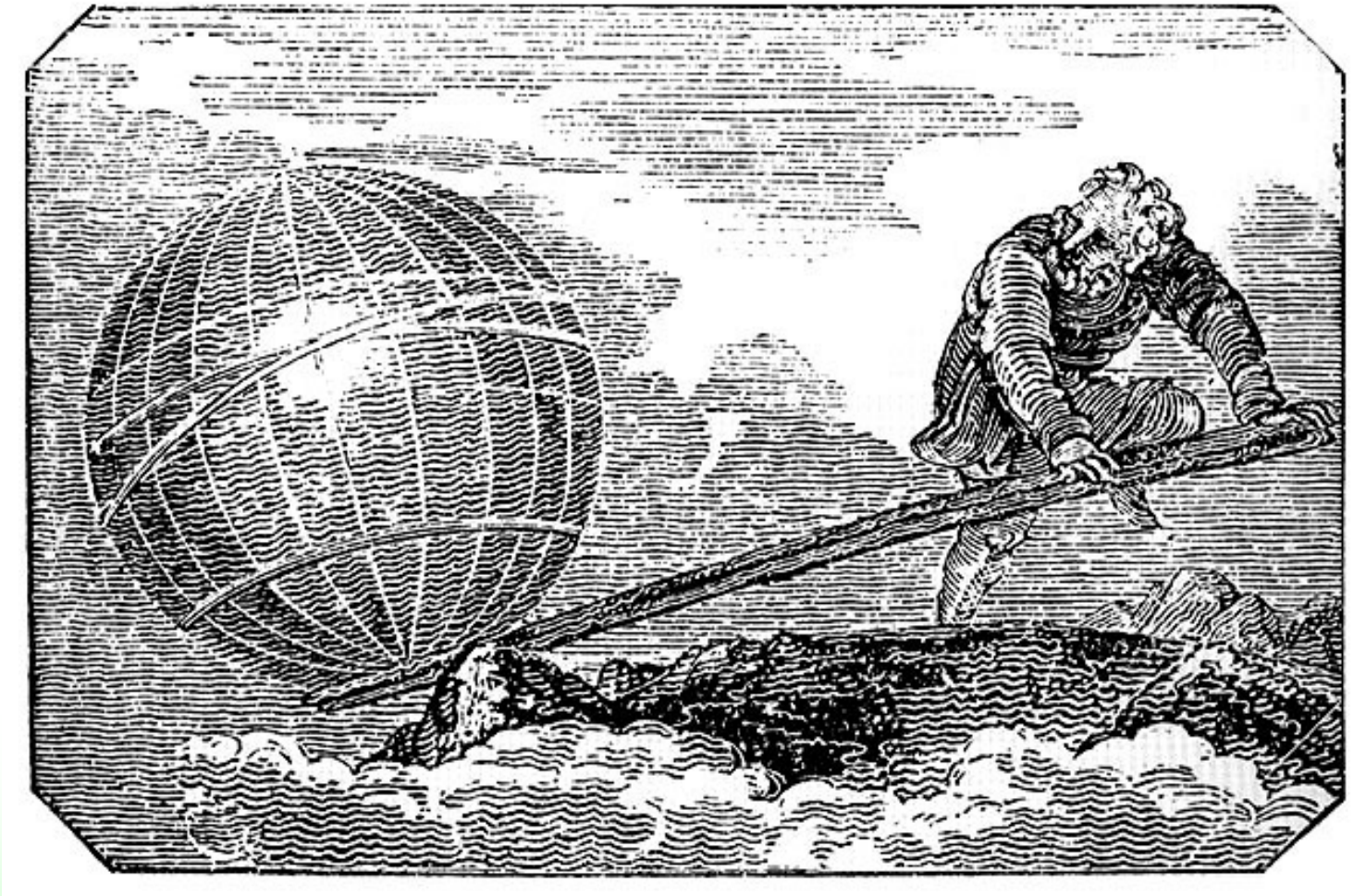
Example Structure: Tualatin Elementary School



What can go wrong?

1. Does not match staff members' personal theory or sense of role
2. Staff don't work out the "chemistry" or needed interaction patterns
3. Low quality interventions (not scientific, research-based)
4. Lack of fidelity of implementation (check lists, outside monitoring)
5. Insufficient intervention "dosage" (time, frequency, duration, knowledgeable teachers)
6. Inappropriate target of progress monitoring (word ID fluency, passage reading, maze task)
7. Limited to K-3rd grade *reading* research (few math and 4th-12th grade findings)
8. Inconsistent professional development (staff transition in/out of schools, training opportunities)
9. Insufficient evidence for SLD determination

Change: Lever, Position, & Energy



Analyzing Change vs. Stability

SLD Identification
(Technology)

- Current practices
- Change agent

Perceived Role
(Theory)

- Professional beliefs
- Context

School Culture
(Social System)

- Team relationships
- Team chemistry

William Reid (1987)

Understanding the role of "human sense-making"

- **Successful implementation of complex policies usually necessitates substantial changes in the implementing agents' schemas. Most conventional theories of change fail to take into account the complexity of human sense making……**

- **Sense-making is not a simple decoding of the policy message, in general, the process of comprehension is an active process of interpretation that draws on the individual's rich knowledge base of understandings, beliefs, and attitudes.**

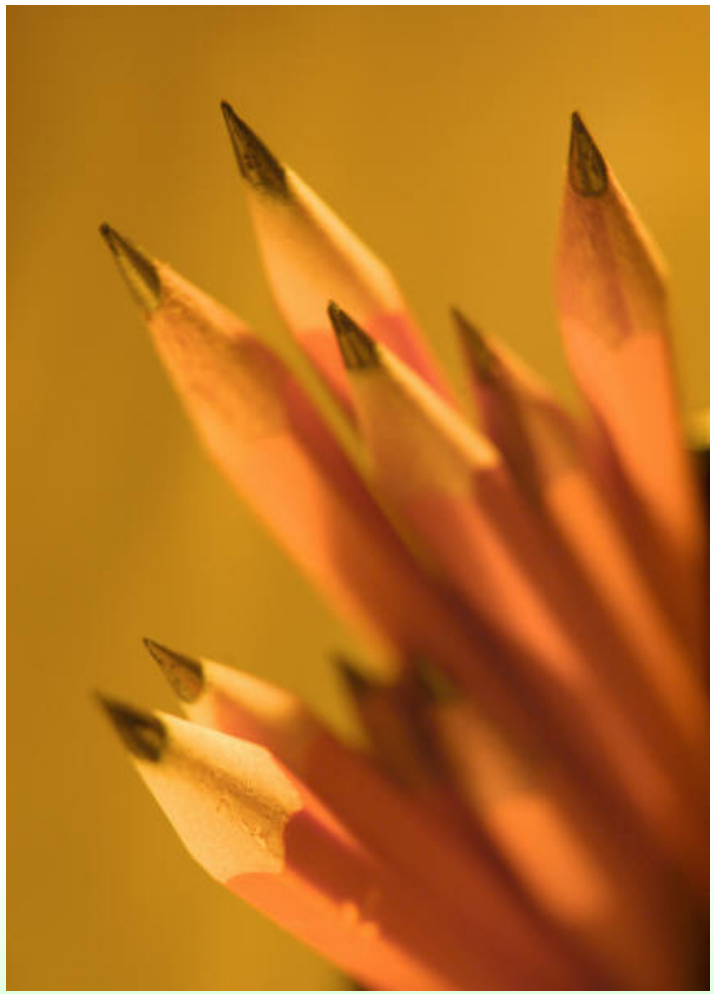
Spillane, Reiser, & Reimer, 2002

What should we expect?

Assume staff discuss a student's responsiveness to an intervention. What might we expect?

1. How were the student's academic or behavioral difficulties determined?
2. How was a match made to the chosen intervention?
3. Was the intervention (dosage) intense enough?
4. Was the intervention delivered with fidelity?
5. Was the progress measure appropriately matched to the intervention?
6. Are the cut scores objectively stated?

Tools for getting started



NRCLD.org for materials

- Implementation checklist (Attached)
- *Getting Started*
- *RTI Implementation*
- *SLD Determination (in progress)*
- *RTI Resource Kit (OSEP vetting)*

Thank You

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