Supporting the Classroom Teacher as RTI 'First Responder': Three Recommendations



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Three Blockers to Teachers Serving as Effective Intervention 'First Responders'

- The teacher is not able to define the student academic problem clearly and specifically.
- The teacher is unable to match the student academic problem to the appropriate intervention.
- The teacher monitors student progress on the intervention but fails to place this data collection within an appropriate 'data context' (baseline, goal, regular progress-monitoring) necessary for effective problem-solving.

Big Ideas: Low-Level Inferences Should Be Investigated First (Christ, 2008)

"An inference is a tentative conclusion without direct or conclusive support from available data. All hypotheses are, by definition, inferences. It is critical that problem analysts make distinctions between what is known and what is inferred or hypothesized....Low-level inferences should be exhausted prior to the use of high-level inferences." p. 161

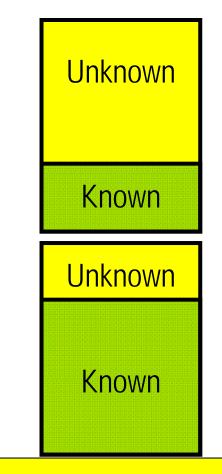
Source: Christ, T. (2008). Best practices in problem analysis. In A. Thomas & J. Grimes (Eds.), Best practices in school psychology V (pp. 159-176).

Examples of High vs. Low Inference Hypotheses

An 11th-grade student does poorly on tests and quizzes in math. Homework is often incomplete. He frequently shows up late for class and does not readily participate in group discussions.

High-Inference Hypothesis. The student is 'just lazy' and would do better if he would only apply himself.

Low-Inference Hypothesis. The student has gaps in academic skills that require (a) mapping out those skill gaps, and (b) providing the student with remedial instruction as needed.



Focus on School Factors That We Can Control

"Some factors in students' lives (such as family divorce, moving frequently, drug use, and poor teaching) lower the *probability* that these students will learn and/or get along with others. These are often referred to as risk factors...Risk factors do not assure student failure. Risk factors simply make the odds of failure greater. Aligning assessment and instruction allows teachers...to introduce new factors into the student's life that raise the probability of learning. These are often called protective factors since they protect against the risks associated with risk factors...The use of protective factors to raise the probability of learning is often referred to as resilience."

Source: Hosp, J. L. (2008). Best practices in aligning academic assessment with instruction. In A. Thomas & J. Grimes (Eds.), Best practices in school psychology V (pp.363-376). Bethesda, MD: National Association of School Psychologists.

'Teacher Tolerance' as an Indicator of RTI Intervention Capacity

"I call the range of students whom [teachers] come to view as adequately responsive – i.e., teachable – as the tolerance; those who are perceived to be outside the tolerance are those for whom teachers seek additional resources. The term "tolerance" is used to indicate that teachers form a permissible boundary on their measurement (judgments) in the same sense as a confidence interval. In this case, the teacher actively measures the distribution of responsiveness in her class by processing information from a series of teaching trials and perceives some range of students as within the tolerance." (Gerber, 2003)

Source: Gerber, M. M. (2003). *Teachers are still the test: Limitations of response to instruction strategies for identifying children with learning disabilities*. Paper presented at the National Research Center on Learning Disabilities Responsiveness-to-Intervention Symposium, Kansas City, MO.

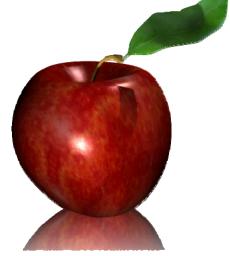
Academic or Behavioral Targets Are Stated as 'Replacement Behaviors'

"The implementation of successful interventions begins with accurate problem identification. Traditionally, the student problem was stated as a broad, general concern (e.g., impulsive, aggressive, reading below grade level) that a teacher identified. In a competencybased approach, however, the problem identification is stated in terms of the desired replacement behaviors that will increase the student's probability of successful adaptation to the task demands of the academic setting." p. 178

Source: Batsche, G. M., Castillo, J. M., Dixon, D. N., & Forde, S. (2008). Best practices in problem analysis. In A. Thomas & J. Grimes (Eds.), Best practices in school psychology V (pp. 177-193).

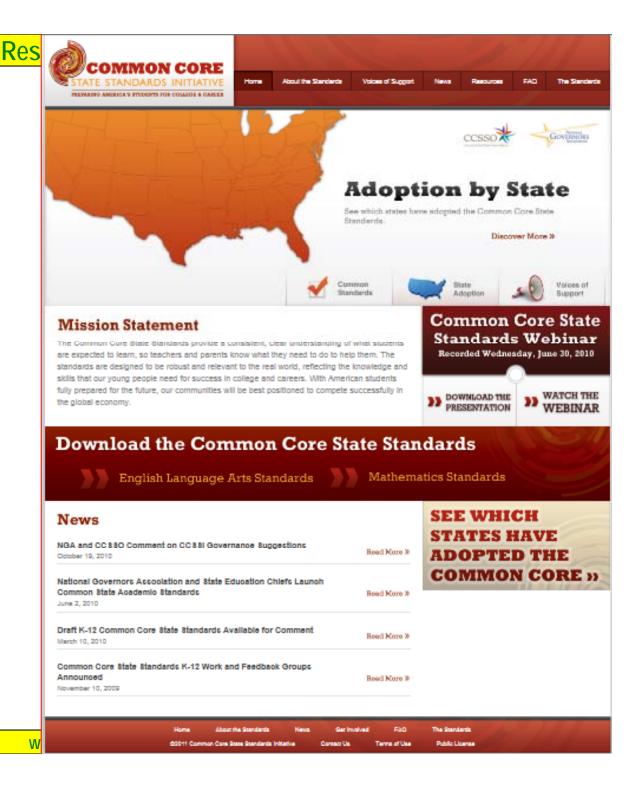
RTI 'Blocker' 1: Problem Definition

- The teacher is unable to define the student academic problem clearly and specifically.
 RTI 'Blocker' 2: Intervention 'Match'
- The teacher is unable to match the student academic problem to the appropriate intervention.



Common Core State Standards Initiative http://www.corestandards.org/

View the set of Common Core Standards for English Language Arts (including writing) and mathematics being adopted by states across America.



New York State P-12 Common Core Learning Standards for Mathematics: Excerpt

Operations & Algebraic Thinking

1.OA

Understand and apply properties of operations and the relationship between addition and subtraction. 3. Apply properties of operations as strategies to add and subtract.² *Examples:* If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.) 4. Understand subtraction as an unknown-addend problem. For example, subtract 10 - 8 by finding the number that makes 10 when added to 8. Add and subtract within 20.

Add and subtract within 20.

5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 - 4 = 13 - 3 - 1 = 10 - 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 - 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).

Source: *New York State P-12 Common Core Learning Standards for Mathematics*. (n.d.). Retrieved from http://www.p12.nysed.gov/ciai/common_core_standards/pdfdocs/nysp12cclsmath.pdf

New York State P-12 Common Core Learning Standards

- The standards are largely hierarchically arranged, with standards from later grade levels depending on mastery of standards from earlier grade levels.
- The standards are written (for the most part) as specific, targeted 'criterion-referenced' goal statements.
- Teachers can therefore use the standards to assess the student and (when necessary):
 - write a problem-identification statement
 - select an appropriate intervention
 - generate a student performance goal.

New York State P-12 Common Core Learning Standards: Example: Operations & Algebraic Thinking

- NYS Common Core Math Standard 1.OA.6: *Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.*
- Measurement: The teacher shows the student a set of addition 0-10 math-fact cards, counting as correct any fact the student can correctly answer within 3 seconds. Cards are sorted into 'known' and 'unknown' piles based on student responses.

New York State P-12 Common Core Learning Standards: Example

- Student Problem Identification Statement: "When shown the full set (11 cards) of 2-digit addition math-fact flashcards 0-10, Janie was able to correctly answer only 4 of them."
- Intervention Selection: Number Counting Instruction
- Goal Statement: "At the end of the 3-week intervention, the student will be able to correctly answer all addition 0-10 math-fact cards."

DESCRIPTION: The student is taught explicit number counting strategies for basic addition and subtraction. Those skills are then practiced with a tutor (adapted from Fuchs et al., 2009).

Source: Fuchs, L. S., Powell, S. R., Seethaler, P. M., Cirino, P. T., Fletcher, J. M., Fuchs, D., & Hamlett, C. L. (2009). The effects of strategic counting instruction, with and without deliberate practice, on number combination skill among students with mathematics difficulties. Learning and Individual Differences 20(2), 89-100.

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MATERIALS:

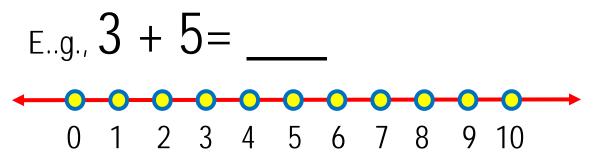
- Number-line
- Number combination (math fact) flash cards for basic addition and subtraction
- Strategic Number Counting Instruction Score Sheet

Source: Fuchs, L. S., Powell, S. R., Seethaler, P. M., Cirino, P. T., Fletcher, J. M., Fuchs, D., & Hamlett, C. L. (2009). The effects of strategic counting instruction, with and without deliberate practice, on number combination skill among students with mathematics difficulties. Learning and Individual Differences 20(2), 89-100.

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PREPARATION: The tutor trains the student to use these two counting strategies for addition and subtraction:

 ADDITION: The student is given a copy of the number-line. When presented with a two-addend addition problem, the student is taught to start with the larger of the two addends and to 'count up' by the amount of the smaller addend to arrive at the answer to the problem.



PREPARATION: The tutor trains the student to use these two counting strategies for addition and subtraction:

 SUBTRACTION: With access to a number-line, the student is taught to refer to the first number appearing in the subtraction problem (the minuend) as 'the number you start with' and to refer to the number appearing after the minus (subtrahend) as 'the minus number'. The student starts at the minus number on the number-line and counts up to the starting number while keeping a running tally of numbers counted up on his or her fingers. The final tally of digits separating the minus number and starting number is the answer to the

INTERVENTION STEPS: For each tutoring session, the tutor follows these steps:

1. Create Flashcards. The tutor creates addition and/or subtraction flashcards of problems that the student is to practice. Each flashcard displays the numerals and operation sign that make up the problem but leaves the answer blank.

Source: Fuchs, L. S., Powell, S. R., Seethaler, P. M., Cirino, P. T., Fletcher, J. M., Fuchs, D., & Hamlett, C. L. (2009). The effects of strategic counting instruction, with and without deliberate practice, on number combination skill among students with mathematics difficulties. Learning and Individual Differences 20(2), 89-100.

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INTERVENTION STEPS: For each tutoring session, the tutor follows these steps:

2. Review Count-Up Strategies. At the opening of the session, the tutor asks the student to name the two methods for answering a math fact. The correct student response is 'Know it or count up.' The tutor next has the student describe how to count up an addition problem and how to count up a subtraction problem. Then the tutor gives the student two sample addition problems and two subtraction problems and directs the student to solve each, using the appropriate count-up strategy.

Strategic Number Counting Instruction

INTERVENTION STEPS: For each tutoring session, the tutor follows these steps:

Complete Flashcard Warm-Up. The tutor reviews addition/subtraction 3. flashcards with the student for three minutes. Before beginning, the tutor reminds the student that, when shown a flashcard, the student should try to 'pull the answer from your head'—but that if the student does not know the answer, he or she should use the appropriate countup strategy. The tutor then reviews the flashcards with the student. Whenever the student makes an error, the tutor directs the student to use the correct count-up strategy to solve. NOTE: If the student cycles through all cards in the stack before the three-minute period has elapsed, the tutor shuffles the cards and begins again. At the end of the three minutes, the tutor counts up the number of cards reviewed and records the total correct responses and errors. Source: Fuchs, L. S., Powell, S. R., Seethaler, P. M., Cirino, P. T., Fletcher, J. M., Fuchs, D., & Hamlett, C. L. (2009). The

Strategic Number Counting Instruction INTERVENTION STEPS: For each tutoring session, the tutor follows these steps:

4. Repeat Flashcard Review. The tutor shuffles the math-fact flashcards, encourages the student to try to beat his or her previous score, and again reviews the flashcards with the student for three minutes. As before, whenever the student makes an error, the tutor directs the student to use the appropriate count-up strategy. Also, if the student completes all cards in the stack with time remaining, the tutor shuffles the stack and continues presenting cards until the time is elapsed.

At the end of the three minutes, the tutor once again counts up the number of cards reviewed and records the total correct responses and errors.

Strategic Number Counting Instruction INTERVENTION STEPS: For each tutoring session, the tutor follows

- these steps:
- 5. Provide Performance Feedback. The tutor gives the student feedback about whether (and by how much) the student's performance on the second flashcard trial exceeded the first. The tutor also provides praise if the student beat the previous score or encouragement if the student failed to beat the previous score.

Source: Fuchs, L. S., Powell, S. R., Seethaler, P. M., Cirino, P. T., Fletcher, J. M., Fuchs, D., & Hamlett, C. L. (2009). The effects of strategic counting instruction, with and without deliberate practice, on number combination skill among students with mathematics difficulties. Learning and Individual Differences 20(2), 89-100.

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ponse to	Interve	ention	
Strategic Nur	nber Count	ing Instruction Score Sh	eet
Student:		Interventionist(s):	
Number of Flash-Ca	rds Known From	ber counting instruction intervention, use Memory; Number of Flash-Cards Answe of Flash-Cards Unknown or Answered Ir	ared Correctly With Count-Up Stra
Date:	(Optional) Type/F	Range of Addition/Subtraction Math-Fact	Flash-Cards Reviewed This Ses
Trial 1: Math Flash	-Card Warm-Up:	3 Minutes	
Number of Flash-Ca	rds Known From	Number of Flash-Cards Answered	Number of Flash-Cards Unkno
Memory		Correctly With Count-Up Strategy	Answered incorrectly
Trial 2: Math Flash	-Card Review: 3	Minutes	
Number of Flash-Ca Memory	rds Known From	Number of Flash-Cards Known From Memory	Number of Flash-Cards Known Memory
ст			
Date:	(Optional] Type/F	Range of Addition/Subtraction Math-Fact	Flash-Cards Reviewed This Ses
Trial 1: Math Flash	-Card Warm-Up:	3 Minutes	
Number of Flash-Ca	rds Known From	Number of Flash-Cards Answered	Number of Flash-Cards Unkno
Memory		Correctly With Count-Up Strategy	Answered incorrectly
Trial 2: Math Flash	-Card Review: 3	Minutee	
	rds Known From	Number of Flash-Cards Known From	Number of Flash-Cards Known
Memory		Memory	Memory

Strategic Number Counting Instruction Score Sheet

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Core Standards and Intervention: Recommendations for Schools

For the common core standards:

- Help teachers to develop classroom-friendly methods to clearly assess student performance on each standard.
- Find intervention ideas that match each standard
- Make the resulting collection of interventions available to teachers indexed by core standard.

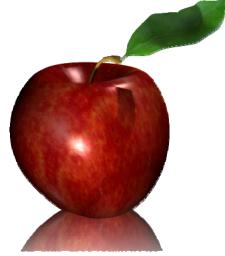
Core Standards and Intervention: Recommendations for Schools (Cont.)

For the common core standards:

- Encourage teachers to use core standards as starting points (as needed) to create informal 'diagnostic' student tasks that will provide insight into whether a given standard has been mastered
- Expect that general-education teachers should be able to 'reach down' 1-2 grade levels in the reading and math core standards to be able to uncover student deficits and design interventions.

RTI 'Blocker' 3: Failure to Place Data Collection in 'Data Context'

 The teacher monitors student interventions but fails to place this data collection within an appropriate 'data context' (baseline, goal, regular progress-monitoring) necessary for effective problem-solving.



Classroom Interventions: Potential 'Fatal Flaws'

Any intervention must include 4 essential elements. The absence of any one of the elements would be considered a 'fatal flaw' that prevents the school from drawing meaningful conclusions about the student's response to the intervention:

- 1. Clearly defined problem. The student's target concern is stated in specific, observable, measureable terms. This 'problem identification statement' is the most important step of the problem-solving model (Bergan, 1995), as a clearly defined problem allows the teacher or RTI Team to select a well-matched intervention to address it.
- 2. Baseline data. The teacher or RTI Team measures the student's academic skills in the target concern (e.g., reading fluency, math computation) prior to beginning the intervention. Baseline data becomes the point of comparison throughout the intervention to help the school to determine whether that intervention is effective. *Source:* Witt, J. C., VanDerHeyden, A. M., & Gilbertson, D. (2004). Troubleshooting behavioral interventions.

A systematic process for finding and eliminating problems. School Psychology Review, 33, 363-383.

Interventions: Potential 'Fatal Flaws' (Cont.)

- *3. Performance goal.* The teacher or RTI Team sets a specific, data-based goal for student improvement during the intervention and a checkpoint date by which the goal should be attained.
- *4. Progress-monitoring plan.* The teacher or RTI Team collects student data regularly to determine whether the student is on-track to reach the performance goal.

Source: Witt, J. C., VanDerHeyden, A. M., & Gilbertson, D. (2004). Troubleshooting behavioral interventions. A systematic process for finding and eliminating problems. *School Psychology Review, 33*, 363-383.

Goal-Setting: Acquisition

Focus of Inquiry: When ACQUISITION is the target, how do we set individual student academic goals?



The focus of classroom interventions is often to help students to acquire a fixed set of academicskill items (e.g., naming numbers 1-10). When the intervention supports the acquisition of a finite set of items, timelines tend to be short (e.g., 1-8 weeks) and the goal is typically mastery of all items in the academic-item set.

 Select a Set of Academic Items as the Intervention Target. The teacher decides on a finite set, or 'pool', of academic items to be targeted in the intervention. Examples of possible academic-item sets suitable for intervention are naming of all mixed-case letters; answering 2-term multiplication math facts 0-12; and giving definitions for 20 key biology terms.

2. Establish Criteria for Item Mastery. The teacher next defines the criteria that allow him or her to judge when the student has mastered any particular item from the academic-item pool. Along with the expectation of a *correct* response, mastery criteria usually include expectations for *speed* of responding.

Creating criteria for determining item mastery is useful because these criteria allow the teacher both to be more consistent and to have greater confidence in judging whether a particular item has been mastered.

2. Establish Criteria for Item Mastery-Cont. As an example of criteria for item mastery, a first-grade teacher decides that mastery on a mixed-case letter-naming intervention should be defined as: "When shown a flash-card with an upper- or lower-case letter, the student will correctly name the letter within 3 seconds."

To cite a second example, a high-school science teacher whose intervention is intended to promote definitions of 20 key biology terms defines mastery as follows: "When shown a biology term, the student will correctly state the definition orally within 10 seconds."

3. Collect Baseline Data. Before beginning the intervention, the teacher determines the student's baseline level of performance. The easiest way to collect baseline data is to present each of the items from the item-pool to the student in random order, have the student respond, apply the mastery criteria (developed in the previous step) to determine whether each item is correct or incorrect, and record the student's responses.

3. Collect Baseline Data-Cont. TIP: If a student tends to have a high degree of variability in responding—e.g., on some days the student answers items correctly and on other days he or she gets those same items wrong—the teacher may want to inventory the student's skills across 2-3 successive days and count as 'known' for baseline only those items the student can correctly answer across <u>all</u> sessions.

Collect Baseline Data-Cont. For example, a first-3. grade teacher collects baseline data by showing her student flash-cards with all 52 mixed-case letters while applying her mastery criteria: The teacher sorts each card whose letter the student can correctly name within 3 seconds into a 'known' pile and sorts into an 'unknown' pile those flash-cards that the student identifies incorrectly or hesitates in responding beyond 3 seconds. At the end of the session, the teacher tallies the student's responses and discovers that at baseline he can correctly identify 38 of a possible 52 mixedcase letters.

4. Set an Intervention Exit Goal. The teacher next sets a student exit goal that defines a successful intervention. In most cases, the teacher will probably decide that the intervention is to be judged a success when the student has met the standard for mastery on all items in the academic- item pool.

For example, a high school science teacher may set, as an intervention exit goal, that a student will be able to correctly define all of the items from a list of 20 key biology terms.

4. Set an Intervention Exit Goal-Cont. Occasionally, however, the teacher may decide that an alternative outcome goal is acceptable.

For example, a fourth-grade teacher may set as an exit goal that a student whose intervention focuses on 2term multiplication facts 0-12 will be able to answer at least 90 percent of those math facts correctly. In this teacher's judgment, 90 percent proficiency on this collection of math facts will permit the student to experience sufficient success on math class- and homework to discontinue the intervention.

5. Decide on the Frequency and Session Length of the Intervention. The teacher decides how long each intervention session is to last and how many intervention sessions the student will receive per week. For students with mild academic deficits, intervention sessions can be as short as 20 minutes per day, 3 days per week. For students with greater deficits, intervention sessions may last 30-45 minutes per session and occur as often as 4-5 days per week.

6. Set a Timespan for the Intervention. The teacher estimates the number of instructional weeks the intervention should be attempted and sets an end-date by which the student is predicted to attain success. An intervention that targets the student's acquisition of a specific set of academic items is typically of short duration: between 1 and 8 instructional weeks.

6. Set a Timespan for the Intervention-Cont. Predicting how long an acquisition intervention should last is more of an art than a science. The teacher must exercise professional judgment, selecting a timespan that is both ambitious *and* realistic.

The frequency and session length of a particular intervention will affect the timespan. For example, a student whose intervention is scheduled at a higher 'dosage' (e.g., daily for 40-minute sessions) can be expected to reach the exit goal faster than a similar student whose intervention is at a lower 'dosage' (e.g., 3 times per week for 20-minute sessions).

7. Monitor the Student's Progress. Throughout the

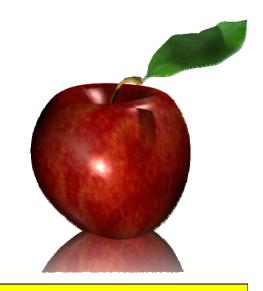
intervention, the teacher can monitor the student's progress periodically (e.g., weekly or even more frequently) by having the student attempt all of the items in the item-pool and recording the results.

For example, the first-grade teacher whose intervention targets a student's letter-naming skills for mixed-case letters measures her student's progress by reviewing all 52 letter flash-cards once per week and, each time, tracking the number of letters that the student is able to name correctly within 3 seconds of being shown the flash-card.

7. Monitor the Student's Progress-Cont. As a second example, the high school science teacher working with a student on acquiring 20 key biology terms and their definitions ends each intervention session by having the student attempt to define all terms, with each vocabulary word counted as correct if the student defines it correctly within 10 seconds.

Linking *Response to Intervention* and *Race to the Top*

• Teachers can better serve as intervention 'first responders' when the school or district aligns its change efforts to fully support the classroom.



RTI and RTT: Complementary Initiatives

- Response to Intervention and Race to the Top are both comprehensive change initiatives whose ultimate goal is to help underperforming students.
- These two initiatives are complementary to one another and can mutually support each other.
- A concern, however, is that districts are organizing their efforts for each initiative in separate 'silos' and will duplicate their efforts unnecessarily.

What is Race to the Top (RTT)?

"Race to the Top is a competitive grant program to encourage and reward States that are implementing significant reforms in ... four education areas...: enhancing standards and assessments, improving the collection and use of data, increasing teacher effectiveness and achieving equity in teacher distribution, and turning around struggling schools." p. 3

Source: US Department of Education (2010, May). *Race to the Top program: Guidance and frequently asked questions*. Retrieved from http://www2.ed.gov/programs/racetothetop/faq.pdf

Similarities Between RTI and RTT

- 1. Both look at comprehensive reform at the district, school, classroom, and individual-student level.
- 2. For both, the focus is ultimately on the struggling student.

Differences Between RTI and RTT

- 1. RTT is grant-driven ('carrots'), while RTI is a mandate ('sticks').
- 2. RTT is focused first on district, school, and teacher accountability, while RTI is focused first on the student.

Response to Intervention

Managing Your District's Change Initiatives: Recommendations

- Continue to invest in building your school or district's capacity to provide RTI services to struggling students, as this increased capacity directly supports the aims of RTT.
- View all local change efforts through both RTI and RTT 'lenses' and combine when possible to avoid duplication. For example, RTI Data Analysis Teams have potentially overlapping functions with RTT Data Inquiry Teams.

Managing Your District's Change Initiatives: Recommendations (Cont.)

- 3. When communicating with staff about various building or district changes (e.g., creation of building Data Teams), describe how these changes will positively impact learning and show how they link to RTI and RTT.
- 4. Assist your teachers in developing a toolkit of resources that they can use at the classroom level to effect positive student change in behaviors and academics—tools that are consistent with system-wide high-quality programs and models (e.g., RTI, PBIS, RTT).