JOHN CARROLL’S MODEL OF SCHOOL LEARNING
TEACHER’S COLLEGE RECORD (1963)

1. Student aptitude
2. Ability to understand instruction
3. Quality of instruction (e.g., behaviors, textbooks, work materials, films)
4. Opportunity to learn
5. Learner perseverance
LINKS IN HIGH QUALITY INSTRUCTION AND FORMATIVE ASSESSMENT

MIM Mid-year meeting, Jefferson City, MO.
January 13, 2010
Daryl Mellard, University of Kansas, Center for Research on Learning
TOPICS IN LINKING HIGH QUALITY INSTRUCTION AND FORMATIVE ASSESSMENT

1. Research base for effective instructor led classroom intervention
2. Assessing student learning
3. Instructional integrity
WHAT DO WE EXAMINE?
- Curricular match
  - Instructional match
  - Fidelity issues around content delivery
- Assessment
1. to provide a structure for problem solving educational needs, and
2. to help school staff respond more effectively to the educational needs of all students.

These essential features are integrated into the school climate to -

- drive decision-making,
- support innovation, and
- support student progress.
**Tier 3:** The intensive level, is the core curriculum supplemented by intensive, individualized supports. Individualized interventions and focused academic and behavior progress monitoring are characteristic of Tier 3.

**Tier 2:** The small group level, is comprised of the core curriculum plus timely, targeted instruction for students needing additional instructional or behavioral supports. School staff identify students in need of Tier 2 support by using data-based decision-making.

**Tier 1:** The universal level, is comprised of core, evidence-based academic instruction and behavior support. All students receive Tier 1 instruction.
MIM ESSENTIAL FEATURES

Essential Features

- Data-based Decision Making
- Shared Vision & Commitment
- District
- Collaboration
- Mentoring & Coaching
- State/Region
- Resource Mapping
- School
- Tiered Levels of Support
- Mentoring & Coaching
- School
- Professional Development
- Evidence-based Practices
- State/Region
- Family & Community Involvement
- Cultural Responsive Practices
- Leadership
- Progress Monitoring
POSITIVE STUDENT OUTCOMES ARE DEPENDENT UPON –

- Fidelity of implementation of process (at the school level)
- Degree to which interventions are empirically supported
- Fidelity of intervention implementation (at teacher level)

(Pierangelo & Giuliani, 2008)
# How is the Contribution for Student Outcomes Distributed?

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Learner Characteristics</td>
<td>33%</td>
</tr>
<tr>
<td></td>
<td>+</td>
</tr>
<tr>
<td>2. School Characteristics</td>
<td>33%</td>
</tr>
<tr>
<td></td>
<td>+</td>
</tr>
<tr>
<td>3. Teacher Characteristics</td>
<td>33%</td>
</tr>
</tbody>
</table>

- 28% (Learner) + 33% (School) + 33% (Teacher) = 94%
- 60% (Learner) + 12% (School) + 33% (Teacher) = 105%
<table>
<thead>
<tr>
<th>Category</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Learner Characteristics</td>
<td>33%</td>
</tr>
<tr>
<td>2. School Characteristics</td>
<td>33%</td>
</tr>
<tr>
<td>3. Teacher Characteristics</td>
<td>33%</td>
</tr>
<tr>
<td>Total</td>
<td>60%</td>
</tr>
</tbody>
</table>
How would you fill in your triangle?

- A meta-analysis of 272 group design studies


- A meta-analysis of 913 single subject design studies
Most effective instruction combined components of

1) direct instruction and
2) strategy instruction, especially in reading
Worksheet of 58 interventions

What do you use?
Circle the number

What works best?
Number 1 to 7
1. Sequencing (e.g., breaking down the task, providing step-by-step prompts)
2. Drill-repetition-practice (e.g., daily testing, repeated practice, sequenced review) (also single subject designs SSD)
3. Segmentation (e.g., breaking down skills into parts and then synthesizing the parts into a whole) (also SSD)
4. **Directed questioning and responses** (e.g., teacher asks process or content questions of students)
5. **Control of task difficulty** (e.g., the teacher provided necessary assistance or sequenced tasks from easy to difficult)
6. Use of technology (e.g., computers, presentation media, flowcharts)
7. **Small group instruction** (≤ 5 students) (also SSD) and
8. Strategy cues (e.g., reminders to use strategies, think aloud models) (also SSD)
9. Supplement teacher and peer involvement (e.g., homework, others assist instruction)
What does the instruction look like for these interventions?

One example is:

*Classroom Instruction That Works*

Rowan, B, Correnti, R, and Miller, B.

What large scale research survey research tells us about teacher effects on student achievement: Insights from the Prospects study of elementary schools

Teacher College Record, 2002, 104 (8), 1525-1567
Does the school/classroom environment support these practices?

a) Professional development  
b) Recruiting and selection  
c) Mentoring and coaching  
d) Assessments of student learning

What else would be enhancers of effective practice?

What would be structural inhibitors?
1. Review the HO of nine classroom instructional behaviors.

2. What's your strategy to embed them in classes?
PART 2: LEARNERS’ PROGRESS MONITORING

1. Why progress monitor?
2. Distinguishing performance from learning
3. What are we measuring?
4. Graphical displays & curriculum
1. What’s the value \textit{you} attach to assessing learner progress?

2. What’s the value \textit{your learners} attach to knowing their progress?
<table>
<thead>
<tr>
<th><strong>LEARNING</strong></th>
<th><strong>PERFORMANCE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Has 3 dimensions</td>
<td>Has 2 dimensions</td>
</tr>
<tr>
<td>Is number/minute/week</td>
<td>Is number/time (minute)</td>
</tr>
<tr>
<td>Celeration</td>
<td>Frequency</td>
</tr>
<tr>
<td>Average is $\times$ 1.1/week</td>
<td>A count of over 3</td>
</tr>
</tbody>
</table>
1. Performance and learning are independent.
2. Speed and accuracy are independent.
3. Accuracy is distance between frequency correct and frequency wrong.
4. Number of answers correct and number wrong are independent.
5. Average bounce is 4
6. Performance and daily bounce are independent.
1. Produces durability
2. Tool skill fluencies are above 100/min
3. Most curriculum channels see-write
4. Identify the skill domain (e.g., reading, math, writing, speaking)
5. Identify the target skills within the domain (e.g., mixed math facts; associated historical facts, vocabulary meaning)
6. Prepare student materials
7. Prepare examiner materials
MATERIALS NEEDED

Examiner Materials
1. Copies of test materials
2. Timing device
3. Graph for charting
4. Scheduled activity

Learner Materials
1. Test material
2. Response device (pencil, recorder)
3. Practice materials
1. **Data Shows**
   - Speed increasing
   - Accuracy increasing

2. **Curriculum Change**
   - Step up curriculum
1. Data Shows
   - Speed increasing
   - Accuracy increasing

2. Curriculum Change
   - Error drill
1. Data Shows
   - Speed increasing
   - Accuracy maintaining

2. Curriculum Change
   - Teach to errors
1. Data Shows
   - Speed maintaining
   - Accuracy increasing

2. Curriculum Change
   - Tool Skill Drill
1. Data Shows
   - Speed at aim
   - Accuracy at floor

2. Curriculum Change
   - Step up curriculum
1. Data Shows
   - Speed maintain
   - Accuracy maintain

2. Curriculum Change
   - Teach concepts
STUDENT RESPONSE IS LIKE ROCK BOTTOM

1. Data Shows
   - Speed and accuracy below floor

2. Curriculum Change
   - Step curriculum way back
1. Data Shows
   - Speed maintains
   - Accuracy decreases

2. Curriculum Change
   - Slice back
1. Data Shows
   - Speed decreases
   - Accuracy maintaining

2. Curriculum Change
   - Step back curriculum
1. Data Shows
   - Speed decreases
   - Accuracy decreases

2. Curriculum Change
   - Slice back or reward correct
1. Data Shows
   - Speed decreases
   - Accuracy decreases

2. Curriculum Change
   - Step back curriculum
1. Data Shows
   - Speed increasing
   - Accuracy increasing

2. Curriculum Change
   - Plan next curriculum step
How does the school culture support data-based decision-making?

How does student responsiveness get applied to evaluating instructional effectiveness?
PART 3: FIDELITY OF IMPLEMENTATION WITHIN A MULTI-TIERED FRAMEWORK

Daryl Mellard with Christy Khan, Melinda McKnight, and Sara Prewitt

Supported by the U.S. Department of Education, Office of Special Education Programs. Cooperative agreement #H326E070004
Project Officers: Grace Durán and Tina Diamond
Fidelity of implementation refers to how closely the prescribed procedures of a process are followed. (Mellard & Johnson, 2007).

In other words, fidelity of implementation is “the degree to which teachers and other program providers implement programs as intended by the program developers” (p. 240).
SETTING THE STAGE

- Establish a climate for RTI; get buy-in from administration, teachers, staff, students, parents
  - Ensure strong leadership with support systems, such as appropriate resources and professional development
  - Understand the “active ingredients” for RTI implementation, and components such as tiered interventions, screening, and progress monitoring
Leadership and staff must

- **Know** what is expected
- **Do** what is expected
- **Communicate** with one another through feedback channels
- **Check** the system regularly to ensure that the process is being implemented with fidelity – make sure it is working!
Dane & Schneider, 1998; Gresham et al., 1993; O’Donnell, 2008
How well do you “stick to the plan?”

- How well do you stay true to the intervention and not drift from the core elements?

Examples:

- **Primary level:** Following the progress monitoring procedure
- **Secondary and tertiary levels:** Making sure all pieces of the intervention have been implemented as intended
How often does a student receive an intervention?

How long does an intervention last?

Examples (in elementary schools):

- **Primary level:** Providing 90 minutes of reading instruction five days a week
- **Secondary and tertiary levels:** Progress monitoring a minimum of every two weeks for academics
How well was the intervention or instruction delivered?

- Were good teaching practices used?

**Examples:**

- Teacher enthusiasm evident
- Time for student questions and feedback provided
- Student groups and transitions effectively managed
How well do you differentiate one intervention from another?

How well do you avoid inserting pieces from other interventions; contamination; polluting?
How oriented and engaged are the students in this intervention or activity?

**Examples:**
- Amount of time students spend on task
- Levels of enthusiasm for activity
- Extent students feel they learned what was expected
- Number of students meditating with their eyes closed and heads on their desks
TOOLS TO ASSESS FIDELITY

- **Adherence**
  - Components as self-report checklist
  - Screening and progress monitoring data
  - Observation of teaching methods
  - Observation checklist

- **Exposure**
  - Records of how often screening and progress monitoring conducted
  - Observation of teaching duration

- **Quality of Delivery**
  - Observation of teaching strategies and techniques
  - Self-report on knowledge of content, techniques used, and reflection on lesson

- **Program Differentiation**
  - Component checklist

- **Student Responsiveness**
  - Student progress
  - Student survey
# Applying Fidelity Elements Within Your RTI Framework

<table>
<thead>
<tr>
<th></th>
<th>Adherence</th>
<th>Exposure</th>
<th>Quality of Delivery</th>
<th>Program Differentiation</th>
<th>Student Engagement</th>
</tr>
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<tbody>
<tr>
<td>Leadership</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Curriculum</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Instruction</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Data-based Decision Making</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integration/Sustainability</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
## SAMPLE FIDELITY PROTOCOL

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Tool</th>
<th>Frequency</th>
<th>Feedback/ Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>New curriculum/new intervention</td>
<td>• Coaching • Direct observation with checklist</td>
<td>- 2-3 x/ semester</td>
<td>• Coaching • Peer support</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparatively low class average; increase in number of at risk students</td>
<td>• Direct observation with checklist • Student work sample • Teacher log</td>
<td>- 1 x/ month - Weekly</td>
<td>Professional development</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Established instruction/interventions</td>
<td>• Student data • Observation checklist</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New administrator</td>
<td>• Student data • School data • Observation of classroom instruction • Walk-through</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early second semester score slump</td>
<td>• Walk-through • Teacher self-report • Student data</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher request</td>
<td>• Walk-through • Observation with checklist • Videotaping</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
OTHER FACTORS RELATED TO FIDELITY

- **Organizational Characteristics**
  - Principal support
  - School culture
  - Quality of leadership
  - District support
  - Staff morale
  - Readiness to change

- **Teacher Characteristics**
  - Unambiguous instructions
  - Easy administration
  - Confidence, self-efficacy and animation
  - Communication ability

- **Program Characteristics**
  - Less complex
  - Specifically stated essentials

- **Professional Development**
  - Concrete, detailed instruction
  - Administrative resource person
  - Coaches
PRACTICES TO ENSURE FIDELITY OF IMPLEMENTATION

1. Definitively describe the system of components, procedures, and techniques; include feedback and decision making
2. Clearly define responsibilities of specific persons (coaches, teachers, administration)
3. Create a data system for measuring operations, techniques, and components
4. Link fidelity data to improved outcomes data
5. Approach instructor observation in a positive manner emphasizing problem-solving
6. Create accountability measures for noncompliance

(Johnson, Mellard, Fuchs, & McKnight, 2006; Pierangelo & Giuliani, 2008)
1. What do we already have in place to measure the five elements of fidelity?

2. What do we need in order to measure the elements of fidelity adequately?
   At the whole school for the RTI process?
   At the primary level?
   At the secondary level?
   At the tertiary level?
Example tools are posted at RTI4Success.org

1. Action plan for administrators
2. Action plan for teachers
3. Example of a fidelity protocol
4. Example of a fidelity elements matrix
5. High quality instruction matrix
6. Example of an instructional walkthrough
7. Examples of two student satisfaction surveys
8. Examples of two observation checklists
TWO BIG IDEAS TO ENHANCE PRACTICE

1. Human sense making
2. Conceptual Coherence

Reflection:
How can we possibly expect lasting change unless the implementers can make sense of it and the change fits within the district’s/school’s emphasis?
RTI: SURFACE VS. DEEP VIEWS
William Reid (1987)

**RTI Components** (Technology)
- Current practices
- Change agent

**Perceived Role** (Personal Theory)
* Professional beliefs
* Context

**School Culture** (Social System)
- Team relationships
- Team chemistry
SUPPORTING PROFESSIONAL DEVELOPMENT CYCLES

Professional Development
- Coach Models
- Teacher Practices
- Fidelity Check
- Feedback

Classroom Modeling
- Coach Models
- Teacher Implements
- Fidelity Check
- Feedback

Teacher Implementation
- Fidelity Check
- Feedback
<table>
<thead>
<tr>
<th>TRAINING COMPONENTS</th>
<th>Knowledge</th>
<th>Skill Demonstration</th>
<th>Use in the Classroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory and Discussion</td>
<td>10%</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>+Demonstration in Training</td>
<td>30%</td>
<td>20%</td>
<td>0%</td>
</tr>
<tr>
<td>+ Practice &amp; Feedback in Training</td>
<td>60%</td>
<td>60%</td>
<td>5%</td>
</tr>
<tr>
<td>+ Coaching in Classroom</td>
<td>95%</td>
<td>95%</td>
<td>95%</td>
</tr>
</tbody>
</table>
If you have any questions, please feel free to contact:

- Daryl Mellard dmellard@ku.edu
- Melinda McKnight mmck@ku.edu
- Sara Prewett saralp@ku.edu


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