Using Data and Interventions to Improve Reading Outcomes in Early Literacy Skills

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Florida State University and
Eastern Regional Reading First Technical Assistance Center

2nd Annual Literacy Conference, New Jersey, 2004
Why do we have Reading First

1. Far too many poor and minority children are being “left behind” when it comes to growth of proficient reading skills

2. Prevention of reading problems is far more effective and humane than trying to remediate after children fail
Reading stimulates general cognitive growth—particularly verbal skills.

Support your local brain cells. READ.
Benefits of getting off to a strong start

1. Become independent readers earlier, get more reading practice both in and out of school – this is especially important for development of fluency

2. Success brings greater motivation—develop self confidence as a reader

3. Broader reading brings more exposure to a wider range of words -- vocabulary

4. Broader reading helps to build general knowledge-skilled, fluent reading critical for “reading to learn”
Why do we have Reading First

1. Far too many poor and minority children are being “left behind” when it comes to growth of proficient reading skills

2. Prevention of reading problems is far more effective and humane than trying to remediate after children fail

3. New discoveries from scientific research about reading can provide the basis for improved outcomes for all children
Reading First’s model for preventing reading failure in grades K-3: The big Ideas

1. Increase the quality and consistency of instruction in every K-3 classroom

2. Conduct timely and valid assessments of reading growth to identify struggling readers

3. Provide more intensive interventions to “catch up” the struggling readers
Reading First’s model for preventing reading failure in grades K-3: The big Ideas

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3. Provide more intensive interventions to “catch up” the struggling readers
Why is good early assessment so critical?

A central problem in reading instruction arises, not from the absolute level of children’s preparation for learning to read, but from the diversity in their levels of preparation

(Olson, 1998)
The goal of our work in Reading First is to insure that all our schools are able to:

Help all the children like **Andrew** fly to even greater heights and advance to complex reading skills.

Insure that all the children like **David** receive the explicit and systematic support they need to build a foundation from which they, too, can fly.
The Reading First requirement to administer screening, progress monitoring, and diagnostic measures to young children is an attempt to respond to the enormous diversity of instructional needs among children in our schools.

If we do these assessments well we will not overlook our students who are less well prepared and who are not making adequate progress in learning to read.
What can teachers learn from these assessments?

**Screening**

Which children are entering my class weak in the skills and knowledge that are required for success in my classroom?

What are the skills and knowledge that are particularly weak in these children?

**Decisions to be made**

What children in my class are most in need of extra support in order to achieve grade level reading by the end of the year?

What areas of skill and knowledge are most in need of extra support?
What can teachers learn from these assessments?

Information from progress monitoring

Are the children actually learning what I am teaching?

Are the children ready to move forward in the curriculum?

Is my intervention strong enough to place the children on a growth trajectory that ends in grade level performance by the end of the year?
What can teachers learn from these assessments?

Information from progress monitoring

Are the children actually learning what I am teaching?
Are the children ready to move forward in the curriculum?
Is my intervention strong enough to place the children on a growth trajectory that ends in grade level performance by the end of the year?

Decisions to be made

Should I reteach the last unit to some of my children?
Should I move the child to a smaller group, or program more instructional time?
Should I seek help to implement a more powerful instructional strategy?
In order to monitor progress adequately, we need two different kinds of information about progress.

Information from curriculum embedded tests or teacher obs.

Are the children actually learning what I am teaching?

Are the children ready to move forward in the curriculum?

Information from “index” tests like the DIBELS

Is my instruction powerful enough to place the child on a trajectory for grade level achievement by the end of the year?
Data from many thousands of students has shown that how children perform on certain “index” skills is very predictive of whether they will be reading on grade level by third grade.

- In kindergarten, these areas of skill and knowledge are:
  - phonemic awareness, letter knowledge, vocabulary

- In 1st grade, these areas of skill and knowledge are:
  - phonemic awareness, phonemic decoding, vocabulary, reading fluency, comprehension strategies

- In 2nd and 3rd grade, these areas of skill and knowledge are:
  - vocabulary, reading fluency, comprehension strategies
The Dynamic Indicators of Basic Early Literacy Success

**DIBELS: Basic Rationale**

The DIBELS tests are valid and reliable measures of most of these constructs, but not all of them.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Areas of Skill and Knowledge</th>
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<td>phonemic awareness, letter knowledge, vocabulary</td>
</tr>
<tr>
<td>1st grade</td>
<td>phonemic awareness, phonemic decoding, vocabulary, reading fluency, comprehension strategies</td>
</tr>
<tr>
<td>2nd and 3rd grade</td>
<td>vocabulary, reading fluency, comprehension strategies</td>
</tr>
</tbody>
</table>
The consensus view of most important instructional features for interventions

Interventions are more effective when they:

- Provide **systematic** and **explicit** instruction on whatever component skills are deficient: phonemic awareness, phonics, fluency, vocabulary, reading comprehension strategies
- Provide a significant increase in **intensity** of instruction
- Provide ample opportunities for guided practice of new skills
- Provide systematic cueing of appropriate strategies in context
- Provide appropriate levels of scaffolding as children learn to apply new skills
Two kinds of scaffolding are important

Programmatic Scaffolding – role of a good program

The program of instruction is carefully sequenced so that students are explicitly taught the skills and knowledge they need for each new task they are asked to perform.

- Oral blending skills before blending printed words
- Awareness of phonemes before learning how they are represented in print
- Grapheme-phoneme knowledge before decoding
- Vocabulary instruction before reading for meaning
- Strategies for oral language comprehension that support reading comprehension
Two kinds of scaffolding are important

**Responsive Scaffolding**

After an error, or inadequate response, the teacher provides responsive support to assist the child in making a more adequate, or correct response.

Through appropriate questioning or provision of information, the teacher supports the child in doing a task they cannot immediately do on their own.
Teaching children to identify the first phoneme in words

After telling child the names of the pictures, teacher says, ”which one begins with /s/?” child chooses fan

“fan begins with /f/, which one begins with /s/? Child chooses can

“Listen, I’m going to say the names of the pictures very slowly- see which one begins with /s/ - “f-an, f-ire, c-an, s-ack” which one?
Two kinds of scaffolding are important

Responsive Scaffolding

Word reading error – “let’s check this word. Can you read it for me?

Child reads “side”.

Teacher says, “you’re right that the word begins with the /s/ sound. What letter do you see coming right after the s in this word?”

Child says “l”

Teacher says, “what sound does “l” make?”

Child says “/l/”

Teacher says, “if you say the /l/ sound right after /s/ in this word, what word does that make?”
Interventions should be organized in tiers

Layers of intervention responding to student needs

Each tier provides more intensive and supportive intervention

Aimed at preventing reading disabilities
TIER I: Core class instruction

TIER I is comprised of three elements

Core reading program

Benchmark testing of students to determine instructional needs at least three times a year

Ongoing professional development
<table>
<thead>
<tr>
<th>Focus</th>
<th>For all students in K through 3</th>
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<tbody>
<tr>
<td>Program</td>
<td>Scientific-based reading instruction and curriculum emphasizing the five critical elements of beginning reading</td>
</tr>
<tr>
<td>Grouping</td>
<td>Multiple grouping formats to meet student needs</td>
</tr>
<tr>
<td>Time</td>
<td>90 minutes per day or more</td>
</tr>
<tr>
<td>Assessment</td>
<td>Benchmark assessment at beginning, middle, and end of the academic year</td>
</tr>
<tr>
<td>Interventionist</td>
<td>General education teacher</td>
</tr>
<tr>
<td>Setting</td>
<td>General education classroom</td>
</tr>
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</table>
Tier II is small-group supplemental instruction in addition to the time allotted for core reading instruction.

Tier II includes programs, strategies, and procedures designed and employed to *supplement, enhance, and support* Tier I.
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<tr>
<th><strong>Focus</strong></th>
<th>For students identified with marked reading difficulties, and who have not responded to Tier I efforts</th>
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<tr>
<td><strong>Program</strong></td>
<td>Specialized, scientifically based reading program(s) emphasizing the five critical elements of beginning reading</td>
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<tr>
<td><strong>Grouping</strong></td>
<td>Homogeneous small group instruction (1:3, 1:4, or 1:5)</td>
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<tr>
<td><strong>Time</strong></td>
<td>Minimum of 30 minutes per day in small group in addition to 90 minutes of core reading instruction</td>
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<tr>
<td><strong>Assessment</strong></td>
<td>Progress monitoring twice a month on target skill to ensure adequate progress and learning</td>
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Tier III is intensive, strategic, supplemental instruction specifically designed and customized small-group or 1:1 reading instruction that is extended beyond the time allocated for Tier I and Tier II.
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<td>Program</td>
<td>Sustained, intensive, scientifically based reading program(s) emphasizing the critical elements of reading for students with reading difficulties/disabilities</td>
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<td>Grouping</td>
<td>Homogeneous small group instruction (1:1-1:3)</td>
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<td>Time</td>
<td>Minimum of two 30-minute sessions per day in small group or 1:1 in addition to 90 minutes of core reading instruction.</td>
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The top five myths about interventions for struggling readers

1. If a child is a “visual” learner, they should be taught to read using a visual, not an auditory strategy.

2. If a child has not learned “phonics” by the end of first grade, they need to be taught to read in some other way.

3. Children who struggle with phonemic awareness, vocabulary, or phonics in kindergarten and first grade will frequently “catch up” if given time.

4. We should take guidance from theories of “multiple intelligences” or “learning styles” to help us adapt our reading instruction for different children.

5. A little quality time with an enthusiastic volunteer tutor can solve most children’s reading problems.
How can immediate, intensive interventions be scheduled and delivered?

Delivered by regular classroom teacher during the “uninterrupted reading period” in very small groups
Classroom Organization: Learning

Centers for differentiated groups

- **Teacher-Led Center**
  - Small group instruction
    - Teaching “on purpose”
    - Careful observation of individual students
    - Addresses particular individual needs
    - Opportunities for responsive scaffolding

- **Student Centers**
  - Academically engaged
  - Accountability
  - Group, Pair, Cooperative, Individual
How can immediate, intensive interventions be scheduled and delivered?

1. Delivered by regular classroom teacher during the “uninterrupted reading period”

2. Delivered by additional resource personnel during the “uninterrupted reading period”, or at other times during day

3. Delivered by classroom and resource personnel during after school or before school programs

4. Delivered by well-trained and supervised paraprofessionals during the “uninterrupted reading period” or other times

5. Delivered by peers during “uninterrupted reading period”

6. Delivered by computers throughout the day
What materials are available to guide intervention instruction?

1. New “core reading programs” frequently have systematic intervention programs to use in coordination

2. New “core reading programs” frequently have suggested intervention activities as part of the program

3. There are many programs designed specifically for small group instruction in language, PA, phonics, vocabulary

   *Language for Learning*—early vocabulary

   *Road to the Code* – PA and early phonics

   *Great Leaps, Quickreads* – Fluency

   *Elements of Reading: Vocabulary*– K-3 vocabulary

4. Many Programs are reviewed at [www.fcrr.org](http://www.fcrr.org) - FCRR Reports
What does research tell us about the success of our most effective interventions in terms of preventing reading difficulties?
Studies of Prevention

How to measure successful prevention?

Meets standards on measure of reading comprehension at end of third grade

Achieves Oral Reading Rate of more than 40 correct words per minute by end of first grade

Achieves score above the 30th percentile on measures of word reading ability by end of first or second grade
We do not yet know how to prevent reading difficulties in “all” children.

Percent of children scoring below the 30th percentile

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<td>174 hrs.- classroom</td>
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We can prevent early problems with reading accuracy in almost all children

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Fourth grade follow-up for students participating in early intervention through second grade

Accuracy Rate

40th Percentile

Standard Score

- 100
- 90
- 80
- 70
Evidence from one school that we can do substantially better than ever before.

School Characteristics:
- 70% Free and Reduced Lunch (going up each year)
- 65% minority (mostly African-American)

Elements of Curriculum Change:
- Movement to a more balanced reading curriculum beginning in 1994-1995 school year (incomplete implementation) for K-2
- Improved implementation in 1995-1996
- Implementation in Fall of 1996 of screening and more intensive small group instruction for at-risk students
Hartsfield Elementary Progress over five years

Proportion falling below the 25th percentile in word reading ability at the end of first grade

Screening at beginning of first grade, with extra instruction for those in bottom 30-40%

Average Percentile for entire grade (n=105)

- 1995: 31.8
- 1996: 20.4
- 1997: 10.9
- 1998: 6.7
- 1999: 3.7

Percentiles:
- 1995: 48.9
- 1996: 55.2
- 1997: 61.4
- 1998: 73.5
- 1999: 81.7
Hartsfield Elementary Progress over five years

Proportion falling below the 25th Percentile

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Average Percentile

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Why the disparity between early word-level outcomes and later comprehension of complex texts?

Demands of vocabulary in complex text at third grade and higher place stress on the remaining SES related “vocabulary gap”

More complex text demands reading comprehension strategies and higher level thinking and reasoning skills that remain “deficient” in many children
An anecdote from a friend..

“While teaching a learning support lesson to my 6th grade struggling readers, the word carpenter was used. I ask my students to tell me what a carpenter did. They said, "A person who lays carpet." This happened in more than one class.”

“These same students are being ask to learn primogeniture, degenerate, and omnipotent in their regular 6th grade Language Arts class. Wow! This is a tough situation. I work with my students to learn these required words so that they can pass their language arts class but what a waste of good learning time. When I returned today, not one of the students in my second period class remembered what a carpenter did. I got the correct answer in my third period class. Hurray! How long do you think they will remember their regular language arts words?”

Noreen Beattie, 6th grade learning support, Tallahassee, FL
The Challenge of the "vocabulary gap"

This gap arises because of massive differences in opportunities to learn "school vocabulary" in the home.

The gap must be significantly reduced in order to enable proficient reading comprehension of complex texts by third grade.
Percent free/reduced lunch students in Florida Reading First Schools

Average = 74%

Std. Dev = 15.97
Mean = 74.4
N = 315.00
Ave percentile = 34th

29,466 students

31% high risk

Receptive vocabulary, End of Third Grade
First year data from Florida

Average Percentile

Bottom 20%

Percentile on test of Oral Vocab.
Big ideas from “Bringing Words to Life”

First-grade children from higher SES groups know about twice as many words as lower SES children.

Poor children, who enter school with vocabulary deficiencies have a particularly difficult time learning words from “context.”

Research has discovered much more powerful ways of teaching vocabulary than are typically used in classrooms.

A “robust” approach to vocabulary instruction involves directly explaining the meanings of words along with thought-provoking, playful, interactive follow-up.
Remember what reading becomes as children move through elementary and into middle and high school.

Reading Comprehension is:

“thinking guided by print”

Perfetti, 1985
Conclusions:

We know how to prevent problems in reading accuracy and fluency in almost all children—whether we do it or not depends most on “how we feel about the fact we haven’t done it so far.”

We have some promising new techniques for teaching vocabulary in a way that will generalize to reading comprehension. We must incorporate these techniques into our instruction in a very powerful way.
There is no question but that “leaving no child behind in reading” is going to be a significant challenge...

It will involve professional development for teachers, school reorganization, careful assessments, and a relentless focus on the individual needs of every child...

But, it's not the most difficult thing we could be faced with...
Thank You

www.fcrr.org

Science of reading section