Choosing the Most Promising Early Literacy Interventions

February 22, 2018
A 10-year initiative that coordinates, integrates and aligns people, resources and data to double third grade reading proficiency from 39% in 2015 to 80% by 2025.
Today’s Agenda

1. Selecting early literacy indicators
2. Choosing promising interventions
3. Q & A
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Our Approach

Map backwards from third grade proficiency and seek predictors that will improve the odds of this outcome.
Five Criteria for Powerful Indicators

1. Does it **predict** third grade reading (powerful)?
2. Is there **credible research** to support it (evidence)?
3. Is it **relevant** to literacy (literal connection)?
4. Is it **feasible** to collect and report (cost & effort)?
5. Will it **respond** to strategy (move the needle)?
Focus on Foundational Reading Skills

The Many Strands that are Woven into Skilled Reading
(Scarborough, 2001)

LANGUAGE COMPREHENSION

BACKGROUND KNOWLEDGE
(facts, concepts, etc.)

VOCABULARY
(breadth, precision, links, etc.)

LANGUAGE STRUCTURES
(syntax, semantics, etc.)

VERBAL REASONING
(inference, metaphor, etc.)

LITERACY KNOWLEDGE
(print concepts, genres, etc.)

WORD RECOGNITION

PHONOLOGICAL AWARENESS
(syllables, phonemes, etc.)

DECODING (alphabetic principle, spelling-sound correspondences)

SIGHT RECOGNITION
(of familiar words)

SKILLED READING:
Fluent execution and coordination of word recognition and text comprehension.
Eight Nine Research-Based Indicators

These skills and competencies predict third grade reading proficiency.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Age Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expressive Language</td>
<td>Infants and Toddlers</td>
</tr>
<tr>
<td>Language Comprehension</td>
<td>Infants and Toddlers</td>
</tr>
<tr>
<td>Letter Knowledge</td>
<td>Preschool Age (3-5)</td>
</tr>
<tr>
<td>Approaches to Learning</td>
<td>Preschool Age (3-5)</td>
</tr>
<tr>
<td>Phonemic Awareness</td>
<td>Preschool Age thru Kindergarten</td>
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<tr>
<td>Phonics &amp; Decoding</td>
<td>Kindergarten – Third Grade</td>
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<tr>
<td>Fluency</td>
<td>Second – Third Grade</td>
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<tr>
<td>Reading Level</td>
<td>Kindergarten – Third Grade</td>
</tr>
<tr>
<td>School Attendance</td>
<td>Kindergarten – Third Grade</td>
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</tbody>
</table>
Sources for These Indicators

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<table>
<thead>
<tr>
<th>Indicator</th>
<th>Sources (Assessment)</th>
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<tr>
<td>Expressive Language</td>
<td>IGDIs (0-3), myIGDIs (4), TS GOLD</td>
</tr>
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<td>myIGDIs (4), TS GOLD</td>
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<td>myIGDIs (4), DIBELS (K), TS GOLD</td>
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<td>DIBELS (1-2)</td>
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<tr>
<td>Reading Level</td>
<td>TRC (K-3), EOG (3)</td>
</tr>
<tr>
<td>School Attendance</td>
<td>School district data</td>
</tr>
</tbody>
</table>
Our Focus: Keep Kids On The Pathway

READING SUCCESS PATHWAY

Birth to 5 Years
- Expressive Language
- Language Comprehension
- Approaches to Learning
- Letter Knowledge
- Phonemic Awareness

Kindergarten
- Letter Knowledge
- Phonemic Awareness
- High Frequency Words

1st Grade
- Phonemic Awareness
- High Frequency Words
- Phonics

2nd-3rd Grade
- Vocabulary
- Fluency
- Comprehension
Three High Leverage Indicators

• Letter knowledge, phonemic awareness, phonics

• Letter knowledge & phonemic awareness are two greatest cognitive predictors at school entry

• Kids who are behind at the end of Kindergarten are likely behind at the end of first grade.

• Only 12% of 1\textsuperscript{st} graders who are behind catch up by the end of 3\textsuperscript{rd} grade.
Leverage Points On The Pathway

READING SUCCESS PATHWAY

Birth to 5 Years
- Expressive Language
- Language Comprehension
- Approaches to Learning
- Letter Knowledge
- Phonemic Awareness

Kindergarten
- Letter Knowledge
- Phonemic Awareness
- High Frequency Words

1st Grade
- Phonemic Awareness
- High Frequency Words
- Phonics

2nd-3rd Grade
- Vocabulary
- Fluency
- Comprehension

Read Charlotte
If we move the needle on these indicators, we increase the chances that children will read proficiently by 3rd grade.
DIBELS “At Benchmark”

70% - 85% chance of meeting subsequent early literacy goals
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Find What Moves The Needle on Indicators

• We asked two questions:
  1. What works to move these indicators?
  2. How do we know?

• We look for high quality research that shows cause and effect: compares results for children who participate in a program with similar children not in the program
ESSA Tiers of Evidence

• **Tier 1 – Strong Evidence**: supported by one or more well-designed and well-implemented randomized control experimental studies.

• **Tier 2 – Moderate Evidence**: supported by one or more well-designed and well-implemented quasi-experimental studies.

• **Tier 3 – Promising Evidence**: supported by one or more well-designed and well-implemented correlational studies (with statistical controls for selection bias).

• **Tier 4 – Demonstrates a Rationale**: practices that have a well-defined logic model or theory of action, are supported by research, and have some effort underway to determine their effectiveness.
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We Reviewed Over Two Dozen Databases
“Data don’t make any sense, we will have to resort to statistics.”
To measure the impact of an intervention we want to compare effects on participants vs non-participants who are just like them.

Two main ways to create these groups:
- Random assignment (treatment/control)
- Matched groups (treatment/comparison)
Each Group Has A Range of Results

The black line is the average (the mean)
Effect Size

- An “effect size” is a simple way of quantifying the difference between these two groups.

- Can be applied to any measured outcome in education or social science.

- Allows us to compare any two programs.

- Moves beyond simple *statistical significance* to *substantive significance*.
Difference Between Averages is ‘Effect Size’

- Control Mean
- Experimental Mean

Number of Students (y-axis)

Student Achievement (x-axis)

Standard Deviation:
- 50 - 40 = 10

Difference of Means:
- 70 - 50 = 20

Effect Size:
- 20/10 = 2
We Can Benchmark K-3 Outcomes

Available at: http://bit.ly/2Gsqa8g
The median effect size of an evidence-based phonics intervention is 0.17.
For every **15** children served, the typical evidence-based phonics intervention will help **1** have better literacy outcomes.

**NUMBER NEEDED TO TREAT = 15**

NY Times Article: [http://nyti.ms/2yg4jNv](http://nyti.ms/2yg4jNv)
Out of every 100 children served, the typical evidence-based phonics intervention will help 7 have better literacy outcomes.

ABSOLUTE RISK REDUCTION = 7

There Are No “Silver Bullets”

Assuming that 46.1% of NC third graders will score at College and Career Ready anyways:

• On narrow literacy skills (letter knowledge, phonics), typical EBP will improve outcomes for 7 out of 100 elementary children (ES=0.07)

• On broad skills (fluency, comprehension), typical EBP will improve outcomes for 3 out of 100 elementary children (ES=0.17)
Five Criteria for Selecting Interventions

1. Does this intervention have evidence that it can move the needle one or more indicators?
2. Is there evidence for population we seek to serve?
3. How strong is the evidence for this specific intervention?
4. Does the projected size of the impact of this intervention meet or exceed what we would normally expect to see for a given outcome?
5. What is the likely cost-benefit calculation for this intervention?
6. What are the risks of “execution failure”?
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6. What are the risks of “execution failure”? 
• Information provided as a courtesy, assume no responsibility for errors
• We only focused on specific language and literacy indicators (didn’t look for other outcomes)
• Use the NIRN Hexagon Tool to select what’s right for your community

Hexagon Tool: http://unc.live/2FfxRPz
RC Stacked and Aligned Birth-5 Programs

Includes number out of 100 we expect to see with improved outcomes.

1. Reach Out and Read (14) – language
2. Ready4K (10) – letter knowledge
3. Raising A Reader* (9) – language
4. Story Talk (55) – language
5. Active Reading (46) – language

* Combined with family nights and compared to children in a very high quality Pre-K program
11 Promising Birth-5 Literacy Interventions

Includes number out of 100 we expect to see with improved outcomes. If program has more than one outcome, we list results for LARGEST impact.

1. Story Talk (PK shared reading curriculum/PD) 57
2. Read It Once Again (core PK curriculum) 43
3. Active Reading/Dialogic Reading (practice) 46
4. Stepping Stones to Literacy (suppl. PK curriculum) 32
5. Literacy Lab (PK tutoring) 28
6. Ladders to Literacy (suppl. PK curriculum) 27
7. Read It Again Pre-K (suppl. PK curriculum) 16
8. Reach Out and Read (program) 14
9. Ready4K (text messaging program) 10
10. Raising A Reader w/ family nights (program) 9
11. Dolly Parton Imagination Library (program) 7
11 Promising K-3 Literacy Interventions

Includes number out of 100 we expect to see with improved outcomes. If program has more than one outcome, we list results for LARGEST impact.

1. Reading Recovery (1st grade, phonics) 53
2. HELPS (grades 1-3, fluency) 35
3. Stepping Stones to Literacy (grades K-1, alphabets) 32
4. Ladders to Literacy (grade K, alphabets) 27
5. Sound Partners (grades K-3, alphabets) 21
6. Targeted Reading Intervention (grade K-1, alphabets) 17
7. K-PALS (grade K, alphabets) 14
8. Wilson Reading (grades 2-3, alphabets) 13
9. LLI (grades K-2, reading achievement) 11
10. Children’s Literacy Initiative (grade K-3, letter knowledge) 7
11. Reading Partners (grade K-4, comprehension) 4
Two Are Home Grown (from NC)

Includes number out of 100 we expect to see with improved outcomes. If program has more than one outcome, we list results for LARGEST impact.

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What we have before us are some **breathtaking opportunities** disguised as insoluble problems.

John W. Gardner  
Former Secretary of Health, Education and Welfare  
Founder, Common Cause  
Founder, Independent Sector