Fostering Reading at Home: Overcoming Barriers that Impede Parent-Child Reading

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Thanks for inviting me!

Acknowledgements

• Jing Chen, Sherine Tambyraja, Jessica Logan and others

• Institute of Education Sciences (Grants R305G050005, R324A080037), National Institutes of Health (NIDCD Grant DC04933, NICHD Grant HD43204, NIDCD DC013599)
Part 1
An Evidence-Based Early Literacy Intervention: Sit Together and Read (STAR)

Foundational Premises

- Young children’s knowledge about print is very important:
  - A universal cognitive prerequisite for reading (Bialystok & Luk, 2007)
  - Causally related to future reading (Piasta et al., 2012)

Print Knowledge: Understandings about the FORMS and FUNCTIONS of print

Some children show serious lags in the early development of print knowledge

Children with disabilities (especially language impairment)

Children in poverty

Foundational Premises
Early lags in print knowledge contribute to long-term risks in reading achievement for children with LI (about -1.2 SD at grade 5).

Sit Together and Read: Read with a systematic focus on print.

Reading with a systematic focus on print identified as one of 9 essential practices in early literacy.
Active Ingredients:

- Print-rich books
- Explicit attention to print (talk and nonverbal)
- Scope and sequence of instruction

Ingredient 1: Print-Rich Books

In the picture, there are several books displayed. The text mentions that the focus is on rich books, and typical styles are compared.

Ingredient 2: Explicit attention to print

<table>
<thead>
<tr>
<th>Print-Focused Style</th>
<th>Typical Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>This is the title of the book...</td>
<td>What do you think this book is about?</td>
</tr>
<tr>
<td>(book and print organization)</td>
<td></td>
</tr>
<tr>
<td>What do you think this says?</td>
<td>This book is about a garden.</td>
</tr>
<tr>
<td>(print meaning)</td>
<td></td>
</tr>
<tr>
<td>This letter is an M...</td>
<td>What’s he doing here?</td>
</tr>
<tr>
<td>It makes the sound /m/.</td>
<td></td>
</tr>
<tr>
<td>What's he doing here?</td>
<td></td>
</tr>
<tr>
<td>Show me a really long word on this page.</td>
<td>This dog looks so sad.</td>
</tr>
<tr>
<td>(words)</td>
<td></td>
</tr>
</tbody>
</table>

Justice & Ezell, 2002
3. Scope and Sequence (15 objectives, cycled)

(1) Book and print organization
   - page order
   - role of author
   - page organization
   - role of title
   - print direction

(2) Print meaning
   - print function
   - concept of reading
   - environmental print

(3) Letters
   - upper- and lower-case letters
   - names of letters
   - concept of letters

(4) Words
   - simple sight words
   - long and short words
   - letters vs. words
   - concept of word in print

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Books and Objectives

<table>
<thead>
<tr>
<th>Book</th>
<th>Book Title</th>
<th>Print Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>My First Day of School</td>
<td>Environmental print. Metacognitive concept of reading</td>
</tr>
<tr>
<td>2</td>
<td>There's a Dragon at My School</td>
<td>Print function. Concept of word in print</td>
</tr>
<tr>
<td>3</td>
<td>I Like It When...</td>
<td>Author. Print function</td>
</tr>
<tr>
<td>4</td>
<td>The Hungry Frog</td>
<td>Upper vs. lowercase letters. Top and bottom of page</td>
</tr>
<tr>
<td>5</td>
<td>Down by the Cool of the Pool</td>
<td>Title of book. Word identification</td>
</tr>
</tbody>
</table>

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STAR Cards

- manual
- demo videos
- all STAR cards
- Spanish version

http://star.ehe.osu.edu/
<table>
<thead>
<tr>
<th>Week</th>
<th>Book Title</th>
<th>Print Knowledge Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>My First Day of School</td>
<td>Environmental print Concepts of reading</td>
</tr>
<tr>
<td>2</td>
<td>There's a Dragon at My School</td>
<td>Print concepts Concepts of words in print</td>
</tr>
<tr>
<td>3</td>
<td>I Like It When...</td>
<td>Author of book Functions of print</td>
</tr>
<tr>
<td>4</td>
<td>The Christmas Seal</td>
<td>Print concepts Page organization</td>
</tr>
<tr>
<td>5</td>
<td>Lion in the Storm of the Hour</td>
<td>Visual discrimination Word identification</td>
</tr>
<tr>
<td>6</td>
<td>&quot;Who Shall Wear My Baby&quot;</td>
<td>Concepts of letter Page organization</td>
</tr>
<tr>
<td>7</td>
<td>A Day Like Me</td>
<td>Page order Lots of stories</td>
</tr>
<tr>
<td>8</td>
<td>Rumble in the Jungle</td>
<td>Visual discrimination</td>
</tr>
<tr>
<td>9</td>
<td>Daniel Goes to Trouble</td>
<td>Author of book Lots of stories</td>
</tr>
<tr>
<td>10</td>
<td>The Way / Pheat</td>
<td>Short words and long words Functions of print</td>
</tr>
<tr>
<td>11</td>
<td>Spot Those a Cats</td>
<td>Concept of letter Environmental print</td>
</tr>
</tbody>
</table>
Consistent Short-Term Impacts

- Justice et al., 2011

Effects Persist for Two Years (First Grade, $d_s \approx 21$)

(Piasta et al., 2012)

Part 2

Parents’ Implementation of Sit Together and Read (STAR)
It All Started with a Pilot Study

- 4-week home-reading program
- 4 children with language disorders
- New print-rich book provided each week
- Parents taught to emphasize print within book while reading

Small Experiment to Follow-Up

- 4-week home-reading program
- Typically developing children
- Mid-SES sample
- 28 dyads randomly assigned

Great Effects!

<table>
<thead>
<tr>
<th>Measure</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Did best the materials provided</td>
<td>4.75</td>
<td>5.00</td>
<td>4.85</td>
<td>5.00</td>
</tr>
<tr>
<td>2. Randomness of sample information</td>
<td>4.50</td>
<td>4.85</td>
<td>4.65</td>
<td>4.90</td>
</tr>
<tr>
<td>3. Rationale for use of materials</td>
<td>4.75</td>
<td>5.00</td>
<td>4.85</td>
<td>5.00</td>
</tr>
<tr>
<td>4. Mean score of assessments</td>
<td>4.75</td>
<td>5.00</td>
<td>4.85</td>
<td>5.00</td>
</tr>
</tbody>
</table>

Note: 1 = not at all, 5 = extremely, 4 = very much
Parents of Children with LI

- 62 parent-child dyads
- 12 weeks of reading
- 3 readings per week
- 9 references per reading
- Mix of SES
- 3 conditions

Efficacy Research: Head Start Study
Referencing print has causal impacts on children's literacy skills
Justice et al., 2011

Parent Perceptions of Program (5 point scale)

Where did all the parents go?
Where did all the parents go?

Leavers (n = 16)
- Slightly younger (t = .75)
- Less educated (t = .84)
- poorer readers (t = .38)
- Kids slightly more skilled (t = .28)

Parent Logs of Reading
(Logan et al, in press)
- 30 weekly logs requested (each reporting 2 reading sessions)
- On average, 13 weekly logs submitted (43% of required)
- 4 patterns of reading: only about 40% implement well and 40% - 60% disappear

The Hidden Details
- Many studies of parent-implemented interventions in SLT involve middle-SES parents
- Studies involving lower-SES families report high levels of attrition (Lonigan & Whitehurst, 1988)
- Large literature on implementation issues with other home-based interventions
Part 3
Why Don’t People Do What They Are Supposed To Do?

OR

What barriers impede doing or not doing certain things?

Kavitha:
21-year-old single mother
Works at Burger King 40 hrs per week
Household is below poverty line
Quit school in 10th grade
Never reads for pleasure
Diagnosed with ADD and LD in 3rd grade
Told to read daily with her son by the speech-language therapist

Kavitha:
What barriers impede Kavitha’s ability to read regularly with her 4-year-old child?

Conversely, what are some possible enablers?
LM:
Tom, 33-year-old first-time mother
Married with working partner
Assistant Professor at university
Household well above poverty line
Has 4 university degrees, including PhD
Reads constantly for pleasure
Told to do PT exercises with 1-year-old daily to treat severe torticollis

LM:
What barriers impede Laura’s regular implementation of PT exercises with her one-year-old?

Barriers:
didn’t like it; made me extremely uncomfortable
didn’t understand importance; dubious of effectiveness
Explored Barriers to Parent-Child Book Reading at Home:
- child ethnicity
- child task orientation
- mom distress
- mom education
- mom warmth
- ESL
- single parent
- household income

Note: these aren’t actually barriers, but may hold signify barriers

IMPLEMENTATION SCIENCE

Offers a scientific approach to identifying barriers and enablers of evidence-based interventions

Intensive analysis of implementation, with a focus on understanding and improving implementation

Why Do Physicians Over-Prescribe X-Rays for Lower Back Pain? (French et al., 2012)

Theoretical Domains Framework (TDF):
1. Identify the problem (activity that is contra-indicated)
2. Identify barriers (behavioral determinants) related to the problem
3. Identify evidence-based techniques that align with those barriers
4. Identify the effects of these techniques on the target behavior

Why Do Physicians Over-Prescribe X-Rays for Lower Back Pain? (French et al., 2012)
Testing Behavior-Change Techniques

- The theoretical mapping of behavioral determinants (barriers) to evidence-based techniques allows empirical tests of the effects of these techniques on behaviors.

- This approach can be applied to all therapies in which implementation is an issue, including parent-based book-reading interventions.

Part 4
Behavior-Change Techniques and Parents’ Home Reading

Step 1: Identify which behavior needs to be changed

- 150 minutes of moderate aerobic activity each week
- Strength exercises at least twice weekly that work all major muscle groups

Step 1: Identify which behavior needs to be changed

Regular read-alouds per week sustained for an intervention period (Group 3)
Step 2: what barriers impede implementation?

Prominent behavioral determinants (French et al., 2012)

1. Knowledge
2. Skills
3. Social/professional role
4. Beliefs about consequences (mind-set)
5. Intentions/follow through
6. Environmental context
7. Social influences
8. Behavioral regulation

Mixed-Method retrospective analysis (Justice et al., 2015)

1. Beliefs about capabilities: self confidence
2. Beliefs about capabilities: empowerment
3. Intentions/follow through
4. Skills

Step 4: Identify techniques

<table>
<thead>
<tr>
<th>Step 2: Which barriers need to be addressed (for caregivers)?</th>
<th>Step 3: Which theoretical domain do the barriers operate (from TDF)?</th>
<th>Step 4: Which behavior change technique would overcome the barrier?</th>
<th>Technique name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to complete reading logs and/or sessions</td>
<td>Intention/time pressures</td>
<td>Reward</td>
<td>Reward</td>
</tr>
<tr>
<td>History of reading difficulties</td>
<td>Beliefs about capabilities (self-confidence)</td>
<td>Feedback</td>
<td>Feedback</td>
</tr>
<tr>
<td>Not comfortable reading (to self, adult)</td>
<td>Beliefs about capabilities (empowerment)</td>
<td>Model</td>
<td>Model</td>
</tr>
<tr>
<td>Limited understanding of benefits of reading</td>
<td>Beliefs about capabilities (empowerment)</td>
<td>Encourage</td>
<td>Encourage</td>
</tr>
</tbody>
</table>

STAR-3
- Collaboration with Nationwide Children’s Hospital (NCH)
- 128 caregivers of children with LI receiving therapy at NCH

<table>
<thead>
<tr>
<th>Technique</th>
<th>Conditions in Full Factorial Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reward</td>
<td>1 0 0 1 0 1 1 1 0 0 1 1 0 0 1 0</td>
</tr>
<tr>
<td>Feedback</td>
<td>0 1 1 1 0 0 1 1 0 1 1 0 0 1 1 0</td>
</tr>
<tr>
<td>Model</td>
<td>0 0 1 1 0 0 1 1 1 1 1 1 1 1 1 1</td>
</tr>
<tr>
<td>Encourage</td>
<td>0 0 1 1 0 0 1 1 1 1 1 1 1 1 1 1</td>
</tr>
</tbody>
</table>
Techniques

• **REWARD**: 50 cents per reading ($30 possible)

• **FEEDBACK**: One-on-one coaching every three weeks based on submitted audiotapes/logs

• **MODEL**: One-on-one demonstration every three weeks of how to read the upcoming books

• **ENCOURAGEMENT**: Ongoing text messages of support (Remember to read with Mathilda this week; the STAR readings are so important to her literacy development)

Overall Implementation

• **DROP-OUT**: 30% (n = 38) of families left the study/quit the program

• **Predictors of drop-out**:
  - Not closely related to any child characteristic, except initial alphabet knowledge
  - Related to one parent report item (I sometimes don’t read to my child because other important things come up)

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**Paying Parents to Read** and other behavior-change techniques (Justice et al., in review)

- Paying and Encouraging
  - Paying and encouraging parents resulted in **10 more readings**, on average, than the control
    - Theoretically, paying addresses intentions/time pressures
    - Theoretically, encouragement promotes empowerment

  - Providing feedback resulted in **20 fewer readings**, on average, than paying and encouraging

  - Children whose parents received rewards showed the greatest growth over 15 weeks in print knowledge
***** Take-Home Points*****

→ Home-based reading interventions can support early literacy development, including for children with LI.

→ Most studies don’t involve high-risk parents or, if they do, ignore implementation barriers and drop-out.

→ There are many barriers to ‘doing the right thing’ – must apply a theoretical lens to identify barriers and empirically test efforts.

→ Rewards and encouragement may help parents with implementation.

→ Many novel, possible new avenues to explore via implementation science and clinical experimentation.

• THANK YOU!!!