Language Acquisition and Early Brain Development

June 26, 2018
2:00- 3:00pm ET
For Audio: 800-581-5838, ext. 590 951#
Webinar Objectives

• Explore how states and territories are encouraging positive, language-rich interactions and relationships between caregivers and children, particularly from the prenatal period to three years of age.

• Discuss the importance of early learning and language development for child and brain development.

• Learn about implementing public health programs and policies that successfully foster language nutrition and improve health and education outcomes for children.
Agenda

2:00   Welcome and Introductions
2:05   Roberta Golinkoff, PhD
2:25   Kimberly Ross, MA
2:45   Kevin Slattery, MPA
3:05   Closing and Adjourn
Roberta Golinkoff, PhD
Unidel H. Rodney Sharp Chair and Professor of Education in the School of Education at the University of Delaware
Goo goo ga ga: Lessons from the crib on language development

Roberta Michnick Golinkoff, Ph.D.
Unidel H. Rodney Sharp Professor
Education, Psychology and Linguistics
• Number 1-6 in your notes

• Please cheat! Talk to the person next to you!
Answer these questions for typical, hearing babies
1. Babies recognize their own names at
   a) 2 months
   b) 4 months
   c) 6 months
   d) Adolescence (when they choose not to respond anyway)

2. At what age can typical babies understand sentences like, “Big Bird is tickling Cookie Monster?"
   a) 13 months
   b) 17 months
   c) 25 months
   d) 30 months
3. Babies show they have learned about their native language vowels in experiments using sucking at
a) Birth
b) 6 months
c) 12 months
d) 18 months

4. Babies can calculate statistics on running speech at
a) 2 months
b) 4 months
c) 6 months
d) No such thing
5. When do parents have an impact on the frequency of their babies’ vocalizations?
   a) In utero
   b) At birth
   c) 2 months
   d) 4 months

6. By ______ months babies have about 10 words in their comprehension vocabulary
   a) 2 months
   b) 6 months
   c) 10 months
   d) 12 months
But why care about language?
Why should we care if children know more or fewer words?

- Language helps you capture knowledge, e.g.,
- Language helps you engage in self-regulation
- Language in K - single best predictor of school achievement in all subjects at grades 3 and 5!
- NAEP scores – vocab predicts reading comprehension
- Language skill predicts health care outcomes

You will be judged your whole life by
What do typical HEARING babies learn about language in the first year of life?

• Another way to think about this: What are DHH babies missing if they don’t get hearing aids or CIs months by 12 months of age?
Some assumptions about babies!

• **Born pattern seekers** – If there is a visual or auditory pattern, they will find it.

• **Eager to learn** – regardless of ethnic background or social class – Gopnik story in WSJ study by Begus et al.

• **Highly social** – learn better with people present than not – even prefer to look at face-like configurations in the womb!
1. Babies recognize their own names at
a) 2 months
b) 4 months
c) 6 months
d) Adolescence (when they choose not to respond anyway)

2. At what age can typical babies understand sentences like, “Big Bird is tickling Cookie Monster?
   a) 10 months
   b) 12 months
   c) 14 months
d) 17 months
3. Babies show they have learned about their native language vowels in experiments using sucking at
   a) Birth
   b) 6 months
   c) 12 months
   d) 18 months

   Mean age = 33 hours
   Prefer variants of Swedish ‘ya’ to English ‘i’

4. Babies can calculate statistics on running speech at
   a) 2 months
   b) 4 months
   c) 6 months
   d) No such thing

   PRE 80% TTY.02% BA 80% BY
5. When do parents have an impact on the frequency of their babies’ vocalizations?
   a) In utero
   b) Early birth - 32 weeks
   c) 2 months
   d) 4 months

6. By _______ months babies have about 10 words in their comprehension vocabulary
   a) 2 months
   b) 6 months
   c) 10 months
   d) 12 months

Adult-child interactions supportive of language development start *immediately* after birth.
How do babies come to understand what words mean?

Hollich, Hirsh-Pasek & Golinkoff, 2000
Golinkoff & Hirsh-Pasek, 2008
The earliest demonstration of babies ‘hooking’ sounds to meanings

6 months!

Find Mommy! Where’s Mommy?

Really? Babies understand some language as early as 6 months???
“It is widely accepted that infants begin learning their native language not by learning words, but by discovering features of the speech signal: consonants, vowels, and combinations of these sounds.

Learning to understand words ... is said to come later, between 9 and 15 mo of age, when infants develop a capacity for interpreting others’ goals and intentions” (Bergelson & Swingley, 2011).

But this is wrong!

Between **6 and 9 months** babies understand lots of words: names for body parts, food items, frequently heard words in a baby’s life.
Think about what these findings mean....

- Language input matters far earlier than we thought

  - During the **first 6 months** of life, babies are pulling apart the speech stream, finding the words, calculating statistics, storing frequently occurring words, and more...
Both typical and especially DHH children need to receive input asap!
Babies are so **not** vegetables!

Anne Geddes
Conversational duets

- **Contingent** on the child’s focus
Conclusion:

- Children need to do some heavy lifting to learn language but if we help them with conversation tailored to their interests, they can make great progress!
Thanks to:

Funding from ....

Dr. Kathy Hirsh-Pasek

The best lab ever

The parents and kids who made the research possible
Thanks for listening!
Kimberly Ross, MA
Early Brain Development and Language Acquisition Program Manager, Georgia Department of Public Health
Exploring Georgia’s Approach for Integrating Language Nutrition Coaching into Public Health Workforces
Train Providers to Serve as Language Nutrition Coaches

• In 2014, DPH trained 1,000 WIC nutritionists and clinic staff via webinar to support families with language-building activities as part of their WIC visits.

• Developed print materials to reinforce the messaging that families heard during their visit. At first, these materials included bookmarks, posters, pop up banners, and fliers.
Supporting the Work through Local Champions

• Developed a statewide network of 100 TWMB champions who promoted the initiative in communities across the state

• Georgia has 159 counties and all have at least one WIC clinic

• Counties are grouped into 18 public health districts

• Champions are located in every district
Supporting the Local Champions

• Uses a statewide telehealth network to support and connect champions through quarterly video conference calls

• Created a quarterly newsletter for Champions to share updates and best practices and to highlight Champions who are doing innovative work
Looping in Public Health Nurses

• Trained public health nurses across the state with a combination of in-person and telehealth trainings

• Held a train the trainer session to increase training capacity across the state.

• Trainers work with DPH staff and community organizations that are interested in hosting a training for staff
Valuing Evaluation and Feedback

• Evaluate new tools before rolling them out to WIC and public health clinics

• Engage staff to understand workflow needs

• “New approach to what you are already doing”

• Survey staff to understand needs and possible barriers

• Provide continuing education opportunities to trainers and Champions
Providence Talks: Disrupting the Status Quo
Overview of PT - 1

Theory of Change

Build on the Power of Parents

- Parents, living in Providence, with a child 0–30 months of age
- Strengths-based coaching, LENA technology
- Increased word counts & parent-child interaction
- Increased scores on developmental assessments
- Links to additional resources
- Early Age Developmental Gains in Language
- Improved Language & Literacy Outcomes

Bloomberg Philanthropies
PROVIDENCE TALKS
## Overview of PT - 2

**PT PROGRESS – NEW MODELS**

<table>
<thead>
<tr>
<th></th>
<th>Home Visiting</th>
<th>Playgroup</th>
<th>Professional Development</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intensity</strong></td>
<td><strong>13 Sessions</strong></td>
<td><strong>8 Sessions</strong></td>
<td><strong>8 Sessions</strong></td>
</tr>
<tr>
<td></td>
<td><strong>15 Recordings</strong></td>
<td><strong>7 Recordings</strong></td>
<td><strong>7 Recordings</strong></td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td><strong>8 Months</strong></td>
<td><strong>4 Months</strong></td>
<td><strong>4 Months</strong></td>
</tr>
<tr>
<td></td>
<td><strong>10 Bi-weekly, 3 Monthly</strong></td>
<td><strong>6 Weekly, 2 Monthly</strong></td>
<td><strong>6 Weekly, 2 Monthly</strong></td>
</tr>
<tr>
<td><strong>Impact (to date)</strong></td>
<td><strong>1,288 Families</strong></td>
<td><strong>509 Families</strong></td>
<td><strong>225 Early Learning Professionals; 800 Children</strong></td>
</tr>
<tr>
<td><strong>Est. Cost</strong></td>
<td><strong>$1700 / Family</strong></td>
<td><strong>$650 / Family</strong></td>
<td><strong>$400 / Family</strong></td>
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</tbody>
</table>
Outcome Metrics We Use

- **LENA-Based Metrics**
  - Adult Word Count (source: LENA Digital Language Processor)
  - Conversational Turn Count (source: LENA Digital Language Processor)
  - Developmental Snapshot (source: self-reporting measurement instrument filled out by the parent)
Outcome Metrics We Use

• Non-LENA Metrics
  • Parenting Ladder
• Terms
  • “Target Group”
Sample LENA Data Report
Data As of June 2018 – PT Target Group (home visiting model)

• Adult Word Count: Families moving from the 13\textsuperscript{th} to the 51\textsuperscript{st} percentile

• Conversational Turns: Families moving from the 20\textsuperscript{th} to the 32\textsuperscript{nd} percentile
Data As of June 2018 – PT Target Group (home visiting model)

- Developmental Snapshot: Families moving from the 24th to 35th percentile

- Parenting Ladder: Families improving PL scores with a statistically significant change in score between PL#1 and PL#2

All percentile changes are measured using standardized scores converted to percentiles, and are statistically significant at the 0.05 level.
Data as of June 2018 – Professional Development Model

<table>
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<tr>
<th>Category</th>
<th>Value</th>
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<tbody>
<tr>
<td>Childcare Providers Served</td>
<td>248</td>
</tr>
<tr>
<td>Children Impacted</td>
<td>785</td>
</tr>
<tr>
<td>% of Providers Who Increased Either AWC* or CTC* PCTL as of 5th Recording</td>
<td>78% (170/217)</td>
</tr>
<tr>
<td>% of Children Who Increased Either LENA Snapshot Score or Developmental Age (Comparing 1st to 2nd Snapshot)</td>
<td>61% (293/478)</td>
</tr>
</tbody>
</table>

*CAdult Word Count, Conversational Turn Count*
Providence Talks Families – Kindergarten Projections

<table>
<thead>
<tr>
<th>Year – Home Visiting</th>
<th># of Entrants</th>
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<tbody>
<tr>
<td>2016 Kindergarten PT Entrants</td>
<td>4</td>
</tr>
<tr>
<td>2017 Kindergarten PT Entrants</td>
<td>19</td>
</tr>
<tr>
<td>2018 Kindergarten PT Entrants</td>
<td>58</td>
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<tr>
<td>2019 Kindergarten PT Entrants</td>
<td>127</td>
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<td>2020 Kindergarten PT Entrants</td>
<td>183</td>
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<tr>
<td>2021 Kindergarten PT Entrants</td>
<td>137</td>
</tr>
<tr>
<td>2022 Kindergarten PT Entrants</td>
<td>57</td>
</tr>
<tr>
<td>Total</td>
<td>585</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year - Playgroup</th>
<th># of Entrants</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016 Kindergarten PT Entrants</td>
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<tr>
<td>2017 Kindergarten PT Entrants</td>
<td>0</td>
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<tr>
<td>2018 Kindergarten PT Entrants</td>
<td>10</td>
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<tr>
<td>2019 Kindergarten PT Entrants</td>
<td>67</td>
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<tr>
<td>2020 Kindergarten PT Entrants</td>
<td>98</td>
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<tr>
<td>2021 Kindergarten PT Entrants</td>
<td>54</td>
</tr>
<tr>
<td>2022 Kindergarten PT Entrants</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>234</td>
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Providence Talks - Government Involvement

- Partnership between private donor (Bloomberg Philanthropies) and City of Providence, RI - $5M Grand Prize as part of 2013 “Mayor’s Challenge” Initiative

- PT functioned out of City Hall in Providence as part of the Mayor’s Office

- Since PT transitioned into Roger Williams University as a part of their School of Continuing Studies, we have continued to work closely with City Leaders on legislation related to funding Early Childhood Initiatives
Providence Talks - Government Involvement

- PT has held meetings and testified before the RI House of Representatives and State Senate related to the “Early Childhood Innovation Act”

- We believe the key to long-term sustainability for innovative EC programming is through state government and educating legislators on the positive impacts these programs have on young children
Lessons Learned

• Start With A Clear Vision

• Build A Culture of Adaptability & Test Everything Early

• Plan for Long-Term Evaluation

• Secure Investment from Leadership

• Build A Coalition & Do It Early
Next Steps for Sustainability

• Investment from the City of Providence
• Roger Williams University
• Early Childhood Innovation Act
• Professional Development Model + collaboration with our partners at Ready To Learn Providence
• Replication
• Brown University’s Longitudinal Analysis
Questions?
Evaluation

Please fill out our evaluation!

http://astho.az1.qualtrics.com/jfe/form/SV_0UPYgDbbcgtjALb