PREDICTIVE SCHOOL READINESS SKILLS AND EXPERIENCES

KRFOUNDATION.ORG

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Today’s Agenda

1. What are the key skills that predict kindergarten readiness?
2. What programs and best-practices have a big impact on K-readiness?
3. What do families believe, do and want for their children
We know more than ever before about what children most need to learn, what programs help them learn, and how we can understand if they are ready.
An agreed upon definition of kindergarten readiness, evidence-based approaches, listening to families and data are essential to accelerating opportunities in the early years and knowing if we are meeting our goals.
The Rainin Foundation has asked NORC at the University of Chicago to help answer 5 questions:

1. Define the key predictors of kindergarten readiness: What skills matter the most?

2. Conduct a literature review of effective practices for children 0-3, 3-5 and K-2 in social emotional development, oral language and literacy and early math: What programs have big impact?

3. Interview 440 Oakland families: What do families do, want, believe and value?

4. Create a Parent Family Community Engagement tool with the National Head Start Assn: How can we make the most of family engagement?

5. Provide review and analysis of kinder readiness assessments: How do we know if Oakland children are school ready?
Interviewing Diverse Families from High-Need Areas Across Oakland

OUSD environmental stress z-scores mapped within OUSD elementary school boundaries. Colors represent environmental stress (e.g., unemployment, violence, vacancy, etc.) within .5 miles of OUSD elementary schools. Bold circles represent schools within whose boundaries NORC will conduct household interviews. Data courtesy of OUSD.
Families Have Big Education Dreams for their Children
Child Social-Emotional Development in Context
Skill Learning in Context

Oral Language & Literacy

Math

Science

Emotional Development
Social Interaction
Approaches to Learning
What are the consensus foundations of whole child development across state and federal standards?

- Oral Language and Literacy
- Cognition & General Knowledge (Math, Science, Social Studies)
- Social Emotional Development
- Approaches to Learning
- Creativity
- Technology
- Physical Development, Health & Safety
In early childhood, what domains and skills predict kindergarten readiness?

- Oral Language and Literacy
- Cognition & General Knowledge (Math, Science, Social Studies)
- Social Emotional Development
- Approaches to Learning
- Creativity
- Technology
- Physical Development, Health & Safety
Oral Language and Literacy: Definition

- The ability to listen, speak, read and write

- **Oral Language** is comprised of language comprehension (listen) and production (speak). Specific skills include:
  - Vocabulary
  - Conversation (questions)
  - Sentence Complexity (syntax)
  - Narrative/Exposition (fiction/fact)
  - Phonological awareness (rhyming, alliteration, blending, segmenting)

- **Literacy** is comprised of decoding (reading) and encoding (writing). Specific skills include:
  - Letter name identification
  - Letter sound correspondence
  - Concepts about print
  - Manual writing
# Oral Language and Literacy: Predictive Skills

## Oral Language:

<table>
<thead>
<tr>
<th>Skill</th>
<th>Predictor</th>
<th>Predicted Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocabulary</td>
<td>Number of words (productive &amp; receptive)</td>
<td>Phonological Awareness, Sentence complexity (syntax), Story/Expository comprehension, Early reading proficiency, Later reading comprehension, Fewer problem behaviors</td>
</tr>
<tr>
<td>Conversation</td>
<td>Amount of displaced (decontextualized) talk</td>
<td>Vocabulary, Early reading proficiency, Abstract Reasoning</td>
</tr>
<tr>
<td>Sentence Complexity</td>
<td>Correct word order, Diversity in complexity</td>
<td>Early reading proficiency</td>
</tr>
<tr>
<td>Narrative/Exposition</td>
<td>Retell Comprehension</td>
<td>Vocabulary, Early reading proficiency</td>
</tr>
<tr>
<td>Phonological Awareness</td>
<td>Ability to rhyme, Alliteration fluency</td>
<td>Alphabet knowledge, Ability to segment words, Spelling, Early reading proficiency</td>
</tr>
</tbody>
</table>
## Oral Language and Literacy: Predictive Skills

**Literacy:**

<table>
<thead>
<tr>
<th>Skill</th>
<th>Predictor</th>
<th>Predicted Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letter Names</td>
<td>Letter name fluency*</td>
<td>Early reading proficiency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Early writing proficiency</td>
</tr>
<tr>
<td>Letter Sounds</td>
<td>Letter sound fluency*</td>
<td>Early reading proficiency</td>
</tr>
<tr>
<td>Concepts About Print</td>
<td>Book and text knowledge</td>
<td>Later reading comprehension</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spelling</td>
</tr>
<tr>
<td>Manual Writing</td>
<td>Ability to use a writing instrument</td>
<td>Fine Motor skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Later reading proficiency</td>
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<td>Later math proficiency</td>
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</tbody>
</table>

*Fluency = Number of accurate responses in a set period of time*
Oral Language and Literacy: Effective Programs, Interventions & Best Practices

- What did we search for?
  - Programs, Interventions, Best Practices
  - 0-36 months and 3-5 years
  - Children, Parents, Caregivers, Practitioners

- How did we define ‘Effective’?
  - Rigorous evaluation design
  - Statistical significance
  - Size of difference between treatment and control (effect size)
    - Small (.01 to .30)
    - Medium (.31 to .79)
    - Large (over .80)
Oral Language and Literacy: Effective Programs, Interventions & Best Practices

- **Programs & Interventions with LARGE Effects:**
  - Exemplary Model of Early Reading Growth and Excellence (EMERGE)
  - Exceptional Coaching for Language and Literacy (EXCELL)
  - Literacy Environment Enrichment Program (LEEP)
  - Early Reading First
  - Words of Oral Reading and Language Development (WORLD)
  - Hear and Say Reading with Toddlers

- **Best Practices with LARGE Effects:**
  - Dialogic Reading
  - Interactive Book Reading
  - Alphabet Letter Instruction
  - Structured Language Input
  - Storybook Reading to Increase Print Awareness
  - Deictic Gesturing
Oral Language and Literacy: Effective Programs, Interventions & Best Practices

- Programs & Interventions with MEDIUM Effects:
  - Minnesota Reading Corps (based on SEEDS)
  - Parent Directed Language Intervention
  - DLM Early Childhood Express supplemented by Open Court Reading Pre-K
  - Play and Learning Strategies (PALS)
  - Literacy Express Preschool Curriculum (LEPC)
  - Sound Foundations
  - Parent-Child Home Program (PCHP)
  - Getting Ready
  - Learning Connections
  - Breakthrough to Literacy (BTL)
  - Bright Beginnings
  - Curiosity Corner
  - Let's Begin with Letter People
  - Ready, Set, Leap!
  - Waterford Early Reading Program
  - Reach Out and Read
  - Abecedarian Project
Oral Language and Literacy: Effective Programs, Interventions & Best Practices

- Best Practices with MEDIUM Effects:
  - Book Reading
  - Elaborative Reminiscing
  - Interactive Writing
  - Structured Language Input
  - Symbolic Gesturing
  - Parent Talk
  - Computer-Assisted Instruction Phonological Sensitivity
  - Video-based Dialogic Reading Training
  - Teacher Responsivity Education
Oral Language and Literacy: Effective Programs, Interventions & Best Practices

- Programs & Interventions with SMALL Effects:
  - Raising a Reader
  - Early Literacy and Learning Model
  - Project STAR (Sit Together and Read)
Oral Language and Literacy: “Active Ingredients”

- What activities have the biggest impact on child outcomes?
  - Active book reading and conversation (start early!)
  - Parent involvement (start early!)
  - Continuous assessments of child’s progress
  - Differentiated instruction
  - Small group instruction
  - Ongoing support for teachers for children’s specific skill development (coaching, PD)
Findings from the 2016 Oakland Household Interview

- Oral Language & Literacy
Frequency of Reading to Child

- **43%** of respondents read to their child every day
- **9%** of respondents rarely read to their child (never or several times a year)
- **85%** of respondents in High SES read to their children every day
Respondent Beliefs About Early Reading

- **73%** agree or strongly agree that parents who have trouble reading themselves can still help their young child learn to read (89% High-SES Neighborhood).

- **74%** of respondents strongly agree that letting babies play with picture books is the first step in teaching them how to read (90% High-SES Neighborhood).

- **59%** of respondents think a child is ready to be exposed to reading and books as an infant (0-6 months) (83% High-SES Neighborhood).
Respondent Beliefs About Early Reading (Toddlers)

- 53% strongly agree that adding descriptions and other words when reading a story helps toddlers understand the story (67% High-SES Neighborhood).

- 40% somewhat or strongly agree that letting a toddler skip words and pages teaches the toddler bad reading habits (3% High-SES Neighborhood).

- 39% somewhat or strongly agree that letting a toddler move around while listening to a story teaches the toddler bad listening skills (7% High-SES Neighborhood).

- 32% somewhat or strongly agree that reading the same book over and over will keep toddlers from learning new words (0% High-SES Neighborhood).
Going Deeper in Vocabulary

- HOME: Attitudes and beliefs
  - “Infants learn very little about language in the 1st 6 months of their life”

![Bar chart showing vocabulary percentile from 8-23 months and 2-5 years. The chart compares the agreement and disagreement levels with the statement “Infants learn very little about language in the 1st 6 months of their life.”]
Going Deeper in Vocabulary

❖ HOME: Frequency of Reading
  ❖ Days per week

![Bar graph showing Vocabulary Percentile for 8-23 Months and 2-5 Years, with comparison between 4 days or less and 5 to 7 days of reading per week.]

- Days per week:
  - 8-23 Months: 4 days or less (blue) and 5 to 7 days (red)
  - 2-5 Years: 4 days or less (blue) and 5 to 7 days (red)
Going Deeper in Vocabulary

- COMMUNITY: Library attendance
  - Frequency of visits in the past year

![Bar chart showing vocabulary percentile for 8-23 months and 2-5 years with categories No Visits and Any Visits]
Going Deeper in Vocabulary

- **ECE: Child Care/PreK**
  - Amount of time in non-household member child care/PreK

![Bar chart showing vocabulary percentile by age and hours of care.]
Oral Language and Literacy
Questions?
Cognition & General Knowledge: Definition

- **Cognition & General Knowledge** is typically defined by three primary subdomains: Math, Science and Social Studies.

- **Math** is comprised of number sense, spatial cognition (geometry), patterns (algebra), and measurement. Specific skills include:
  - Cardinality
  - Ordinality (counting, one-to-one correspondence, number ID)
  - Relative set size
  - Operations
  - Shapes (composition and decomposition)
  - Mental rotation
  - Pattern recognition
  - Linear measure
## Cognition & General Knowledge: Predictive Skills

### Math:

<table>
<thead>
<tr>
<th>Skill</th>
<th>Predictor</th>
<th>Predicted Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinality (number)</td>
<td>Numeral recognition</td>
<td>Math proficiency Operations</td>
</tr>
<tr>
<td></td>
<td>Count list fluency</td>
<td>Math problem-solving K-science proficiency</td>
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<tr>
<td></td>
<td></td>
<td>Early Reading skills</td>
</tr>
<tr>
<td>Relative size (number)</td>
<td>Ability to visually discriminate</td>
<td>Math proficiency</td>
</tr>
<tr>
<td>Mental rotation (space)</td>
<td>Ability to rotate objects</td>
<td>Math proficiency</td>
</tr>
<tr>
<td>Shape (space)</td>
<td>Shape recognition</td>
<td>Math proficiency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Early Reading skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Science proficiency</td>
</tr>
<tr>
<td>Patterns recognition (algebra)</td>
<td>Ability to identify patterns</td>
<td>Math proficiency</td>
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<td></td>
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<td>Early Reading skills</td>
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<td></td>
<td></td>
<td>Science proficiency</td>
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</tbody>
</table>
Cognition & General Knowledge : Math
Effective Programs, Interventions & Best Practices

❖ Programs & Interventions with LARGE Effects:
  ❖ Building Blocks

❖ Programs & Interventions with MEDIUM Effects:
  ❖ Pre-K Mathematics

❖ Programs & Interventions with POSITIVE Effects:
  ❖ MyTeachingPartner – Math & Science
  ❖ Let’s Think! & Maths!
  ❖ One-to-One Play
  ❖ Linear Number Games
  ❖ BedtimeMath*
Findings from the 2016 Oakland Household Interview

- Math
Math Skills

- Percentage of respondents who think these math skills are most important to learn

- How to Count: 72%
- Names of Numbers: 60%
- How to Write Numbers: 50%
- How to Add and Subtract: 40%
- Names of Shapes: 30%
- Directional Words like right/left and up/down: 20%
- How to Do Puzzles: 15%
- How to Draw Shapes: 10%
- How to Stack Blocks: 5%

72% think counting is the most important math skill to learn.
Cognition & General Knowledge: Definition

- **Science** is comprised of process skills related to the scientific method and content knowledge related to the natural sciences. Specific skills include:
  - Observing
  - *Asking questions
  - *Generating hypotheses and predicting
  - Experimentation or testing
  - *Summarizing or analyzing data
  - *Communicating results

- Critical thinking
- Logic and reasoning

- Earth Science (weather, environment, etc.)
- Space Science (planets, stars, etc.)
- Physical Science (gravity, velocity, etc.)
- Life Science (plants, animals, health, etc.)
- *Measurement and classification
Cognition & General Knowledge: Predictive Skills

**Science:**

<table>
<thead>
<tr>
<th>Skill</th>
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<th>Predicted Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific Method</td>
<td>Amount of exposure (earlier is better)</td>
<td>K-science Proficiency Achievement in formal science instruction</td>
</tr>
<tr>
<td></td>
<td>Size of scientific vocabulary (unique words)</td>
<td>K-science Proficiency Understanding of scientific concepts</td>
</tr>
<tr>
<td>Content Knowledge</td>
<td>Amount of knowledge</td>
<td>K-science Proficiency</td>
</tr>
</tbody>
</table>

Oral Language & Literacy

Math

Science
Cognition & General Knowledge
Questions?
Social-Emotional Development: Definition

- **Social-Emotional Development** is comprised of two subdomains, Emotional Development and Social Interaction.

- **Emotional Development** refers to children’s ability to regulate their emotions. Specific skills that enable emotion regulation include:
  - Emotion knowledge
  - Self-awareness
  - Self-confidence, independence & self-direction
  - Flexibility in changing environments
  - Perspective taking
  - Empathy

- **Social Interaction** refers to children’s development and maintenance of relationships with others. Specific skills that support positive social interactions include:
  - Awareness and respect for others
  - Following routines and rules
  - Concept of fairness
# Social Emotional Development: Predictive Skills

- **Emotional Development:**

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<tr>
<th>Skill</th>
<th>Predictor</th>
<th>Predicted Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotion knowledge</td>
<td>Understanding of self and other emotions</td>
<td>Later academic achievement</td>
</tr>
<tr>
<td>Emotion regulation</td>
<td>Ability to “appropriately” regulate emotions</td>
<td>Later academic achievement</td>
</tr>
</tbody>
</table>
## Social Emotional Development: Predictive Skills

### Social Interaction:

<table>
<thead>
<tr>
<th>Skill</th>
<th>Predictor</th>
<th>Predicted Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop &amp; maintain relationships with others</td>
<td>Ability to maintain positive relationships with peers</td>
<td>Math proficiency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Early Reading skills</td>
</tr>
<tr>
<td>Teacher-child relationship quality</td>
<td></td>
<td>Math proficiency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Early Reading skills</td>
</tr>
<tr>
<td>Parent-child relationship quality</td>
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<td>Math proficiency</td>
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<td></td>
<td>Early Reading skills</td>
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<tr>
<td></td>
<td></td>
<td>Approaches to Learning</td>
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<tr>
<td></td>
<td></td>
<td>Positive classroom behaviors</td>
</tr>
</tbody>
</table>
Social-Emotional Development: Effective Programs, Interventions & Best Practices

- Programs & Interventions with MEDIUM Effects:
  - Recognizing, Understanding, Labeling, Expressing and Regulating Emotions (RULER)
  - Positive Parenting Program (TripleP)
  - Incredible Years

- Best Practices with POSITIVE Effects:
  - Create a secure and predictable environment
  - Build positive teacher-child relationships
  - Promote positive social interactions (environmental strategies)
  - Help children manage their behavior
  - Individualize approaches to problem behavior
Findings from the 2016 Oakland Household Interview

- Social-Emotional Development
Household Routines

- 61% of households serve meals at a regular time.
- 56% of children go to bed at a regular time daily.
- 56% of children played outdoors often or very often (88% High-SES Neighborhood).
- 61% of respondents’ stated that their work schedules or other commitments limit the time they have to play with their child.
Typical Household Activities

- Percent of respondents who reported doing these activities 7 days a week

- Tell [CHILD’S NAME] that you love [him/her]?
- Hug or show physical affection to [CHILD NAME]?
- Put [CHILDNAME] to bed?
- Tell [CHILDNAME] that you appreciated something [he/she] did?
- Sing songs or nursery rhymes with [CHILD NAME]?
- Play with toys such as blocks or legos with [CHILDNAME]?
- Play imaginary games with [CHILDNAME]?
- Tell stories without a book to [CHILDNAME]?
- Play with puzzles with [CHILD’S NAME]?
- Take [CHILDNAME] to visit relatives/friends?
Social-Emotional Development

Questions?
Approaches to Learning: Definition

- **Approaches to Learning** is comprised of the skills and behaviors children use to engage in learning, and is strongly tied to Social-Emotional Development. Specific skills and behaviors include:
  - Persistence
  - Attention
  - Motivation
  - Curiosity
  - Learning mindsets (incremental vs. entity)
  - Structured learning (goal setting, planning, organizing)
**Approaches to Learning: Predictive Skills**

- **Skill** | **Predictor** | **Predicted Outcome**

<table>
<thead>
<tr>
<th>Persistence</th>
<th>Ability to stay on task/topic</th>
<th>Later academic success (math, science, reading)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention</td>
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</tbody>
</table>
Approaches to Learning:
Effective Programs, Interventions & Best Practices

- Welcome to the cutting edge!
Approaches to Learning
Questions?
“Active Ingredients” that have the biggest impact on child outcomes

- Start Early!!
- Active book reading and conversation
- Parent involvement
- Small group instruction
- Ongoing teacher support for children’s specific skill development (coaching, PD)
- Continuous quality assessments of child’s progress
Thoughts, Questions and Application
Thank you!

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8-23 Month Old’s PRODUCTIVE ENGLISH Vocabulary by National Percentiles

- 27% of 8-23 month-old children were in the bottom 10% on productive vocabulary
- 16% of 8-23 month-old children were in the top 10% on productive vocabulary
24-72 Month Old’s PRODUCTIVE ENGLISH Vocabulary by National Percentiles

- 43% of 24-72 month-old children were in the bottom 10% on productive vocabulary
- 5% of 24-72 month-old children were in the top 10% on productive vocabulary
8-23 Month Old’s PRODUCTIVE SPANISH Vocabulary by National Percentiles

- 22% of 8-23 month-old children were in the 1-10th percentile in productive vocab
24-72 Month Old’s PRODUCTIVE SPANISH Vocabulary by National Percentiles

36% of 17-30 month-old children were in the bottom 10% on productive vocabulary.

4% of 17-30 month-old children were in the top 10% on productive vocabulary.
Child Development & School Readiness

- 14% of respondents had concerns about how their child was learning PreK or School skills
- 17% of respondents were concerned with their child’s learning, development or behavior.
3 to 6 Year-Old Child’s Academic Preparedness for PreK or Kindergarten

- 55% of respondents rated their children as somewhat prepared academically
- 9% of respondents rather their children as not at all prepared academically

76% of respondents in the high SES neighborhood rated their children as very prepared (compared to 32% in other regions)
3 to 6 Year-Old Child’s Social Preparedness for PreK or Kindergarten

- 48% of respondents rated their children as very prepared socially for PreK or K
- 9% of respondents rated their children as not at all prepared socially for PreK or K

71% of respondents in the high SES neighborhood rated their children as very prepared.
From our survey we learned that families are engaging their communities in this way...
Community Engagement

- 42% of respondents went to an event for their child in the past two years (High SES 67%)
- 67% of respondents had been to the local library
  - 68% went to the local library several times a month or more frequently
  - 92% go to the library for children’s books