Following the Science Upstream: EarlyBird App Identifies Children with Reading Challenges

Emerging Models Webinar

May 5, 2020

gradelevelreading.net @readingby3rd #GLReading #LearningTuesdays

The Campaign for GRADE-LEVEL READING

Michelle Knapik
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Emily Hall Tremaine Foundation

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Co-Founder and Chief Executive Officer
EarlyBird Education

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Community Commentator
Superintendent
Weymouth Public Schools, Massachusetts

Social & Emotional
Learning Model
Pre-K Strategy
Early Identification
Multi-Sensory Phonics
Literacy Model
Parent Engagement
Resources & Tools
THE EARLY LEARNING Eco-System
Teacher
Professional Development in Reading Instruction
Community Wide System
Out-of-School & Summer Programming that Aligns
Classroom Coaching
for Teachers
Extended Learning
for Students

HECKSCHER
FOUNDATION
for CHILDREN

Tremaine Foundation

OAK
FOUNDATION

The Peter and Elizabeth C.
TOWER Foundation

POSES
FAMILY
FOUNDATION
IMAGINE. COLLABORATE. TRANSFORM.

Carla E. Small, MBA

- CEO, EarlyBird Education
- Executive Director, Innovation and Digital Health Accelerator, Boston Children's Hospital
- Business Strategy Consultant – Health Care, Education
- Director Product Development at startup company Work/Family Directions, Inc.
- Mother of three, one with dyslexia

LITTLEWOOD ELEMENTARY SCHOOL

ACPS

DARTMOUTH

Boston Children's Hospital

HARVARD BUSINESS SCHOOL

EarlyBird

Ranked the #1 Children's Hospital by U.S. News & World Report: 2014-2019
BEST CHILDREN'S HOSPITALS
U.S.News
RANKINGS
NIH
National Institutes of Health
#5 in NIH funding for research among all health systems

Boston Children's Hospital Accelerator Model

CULTIVATE EVALUATE ACCELERATE SCALE

CONFIDENTIAL

Portfolio

Boston Children's Hospital | Innovation & Digital Health Accelerator
Until every child is well

Development → Pilot/Validation → Scale/Commercial Use → Successful Exit

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Better assessment and support to optimize the early stages of learning

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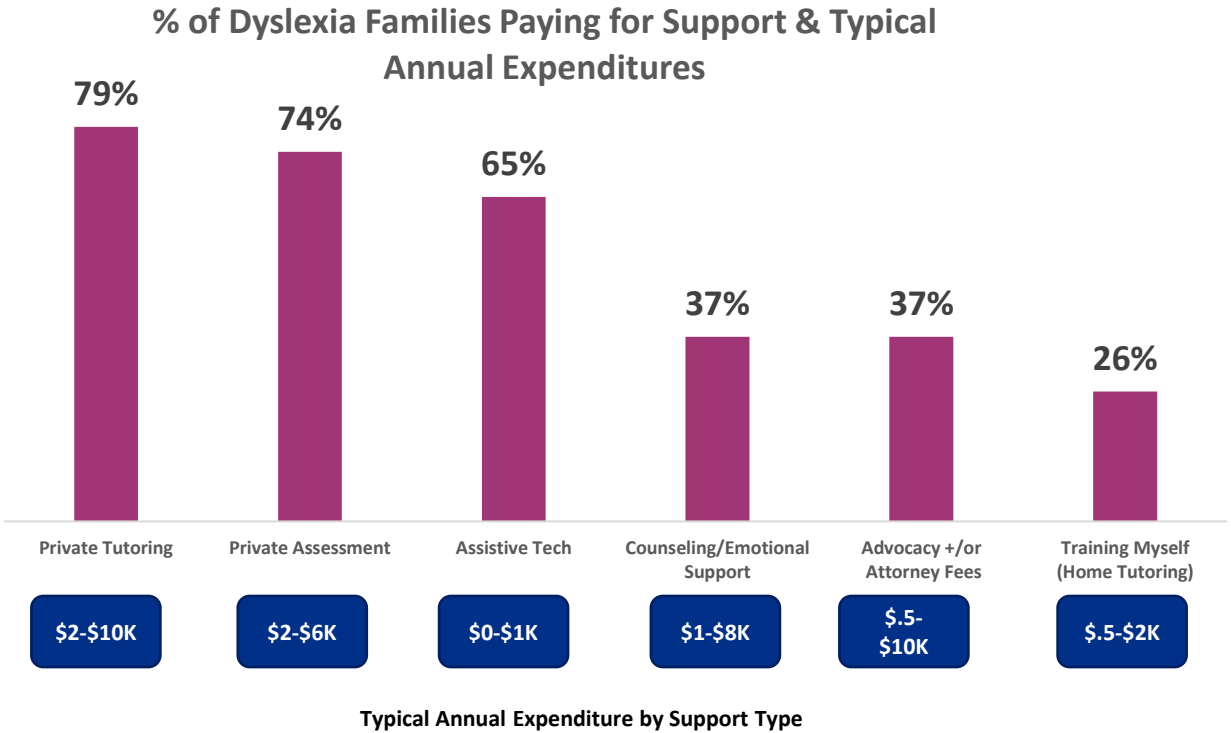
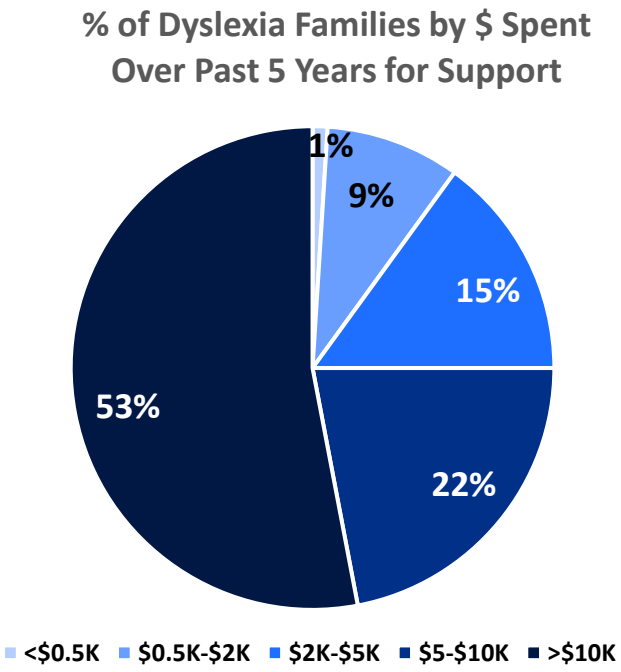
Majority of dyslexia families paying thousands out-of-pocket and navigating complex support ecosystem to ensure their children learn to read





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Nadine Gaab, Ph.D

Children's Hospital Boston

Harvard Graduate School of Education

Harvard Medical School

- PhD from the **University of Zurich (Switzerland)** and postdoctoral training at **MIT** and **Stanford University**
- **Associate Professor of Pediatrics**, Boston Children's Hospital and Harvard Medical School
- **Member of the Faculty**, Harvard Graduate School of Education
- **Principal Investigator** of GaabLab within the Laboratories of Cognitive Neuroscience
- 2020 recipient of the **Normal Geschwind Memorial lecture award** by the **International Dyslexia Association**
- 2019 recipient of the **LDA Award (Learning Disabilities Association America)** for outstanding leadership at the national level in the learning disabilities field.
- 2018 recipient of the **Allan C. Crocker Award** for her advocacy on behalf of children with dyslexia and reading disabilities and efforts around the recent passage of the Massachusetts screening legislation (under the guidance of Decoding Dyslexia MA).
- 2017 **Alice H. Garside Award** for outstanding leadership in advancing the science and advocacy of dyslexia.
- 2012 T. **Berry Brazelton Award** for Innovation from Boston Children's Hospital
- Member of the Board of Trustees; **Landmark School** (Beverley, MA)
- Founder (former president) of the **New England Research on Dyslexia (NERDY) Society**
- Advisory Board member: **National Center on Improving Literacy (NCIL)**
- Consultant; **Massachusetts state-level literacy initiative**

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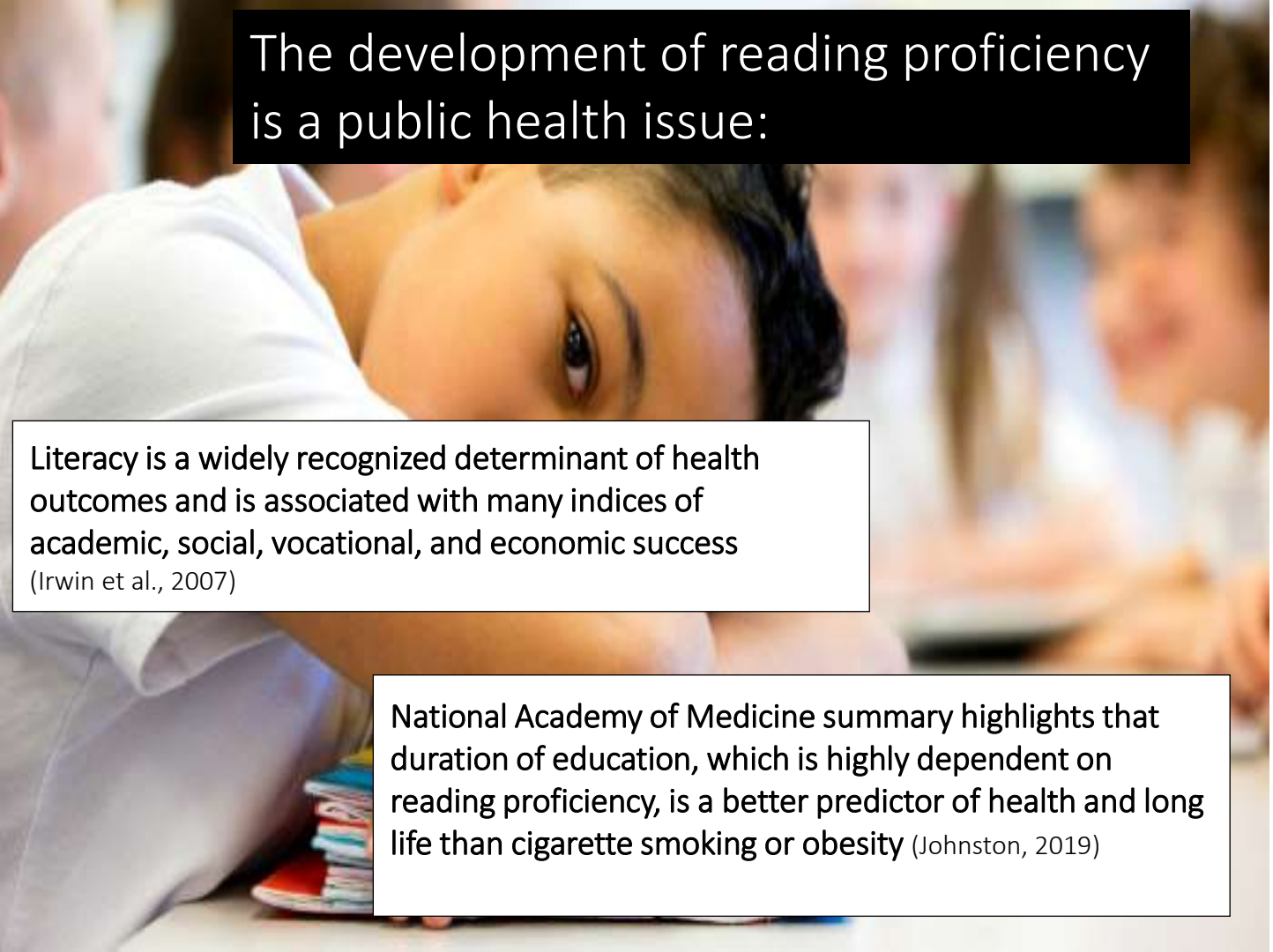
The development of reading proficiency is a public health issue:



Literacy is a widely recognized determinant of health outcomes and is associated with many indices of academic, social, vocational, and economic success (Irwin et al., 2007)

National Academy of Medicine summary highlights that duration of education, which is highly dependent on reading proficiency, is a better predictor of health and long life than cigarette smoking or obesity (Johnston, 2019)

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Childhood reading skills

Development of basic reading skills is one of the primary goals of elementary education:

- 65% of fourth-graders are reading below grade level (unchanged in last 25+ years); approx. 80% of those from low socio-economic backgrounds[1,2]
- Difficulty reading at grade-level can lead to low self-esteem, feelings of shame, inadequacy, helplessness and depression in children[3]

Adolescence/Adult Outcomes

- Children with learning disabilities are less likely to complete high school or pursue higher education, and are at an increased risk of entering the juvenile justice system[4,5]
- Up to 92% of working-age adults with learning disabilities had annual incomes of less than $50,000 within eight years of leaving high school. 67% earned $25,000 or less[6]
- Approx. 1/3 of all adults cannot read drug labels and low literacy costs the U.S. 230 billion/year in health care costs[7].

1. National Center for Education Statistics (2017). The Nation's Report Card: A First Look: 2019 Mathematics and Reading.
2. Institute of Education Sciences, U.S. Department of Education, Washington, D.C.
3. Valas, H. (1999). Students with learning disabilities and low-achieving students: Peer acceptance, loneliness, self-esteem, and depression. *Social psychology of education*, *3*(3), 173-192.
4. Mallett, Christopher A., "Disparate Juvenile Court Outcomes for Disabled Delinquent Youth: A Social Work Call to Action" (2009). Social Work Faculty Publications.
5. U.S. Department of Education, Institute of Education Sciences, National Center for Special Education Research, National Longitudinal Transition Study-2 (NLTS2), Wave 4 parent interview and youth interview/survey, 2007
6. Cortiella, C., & Horowitz, S. H. (2014). The state of learning disabilities: Facts, trends and emerging issues. *New York: National Center for Learning Disabilities*, 2-45.
7. US. Department of Health; 2003

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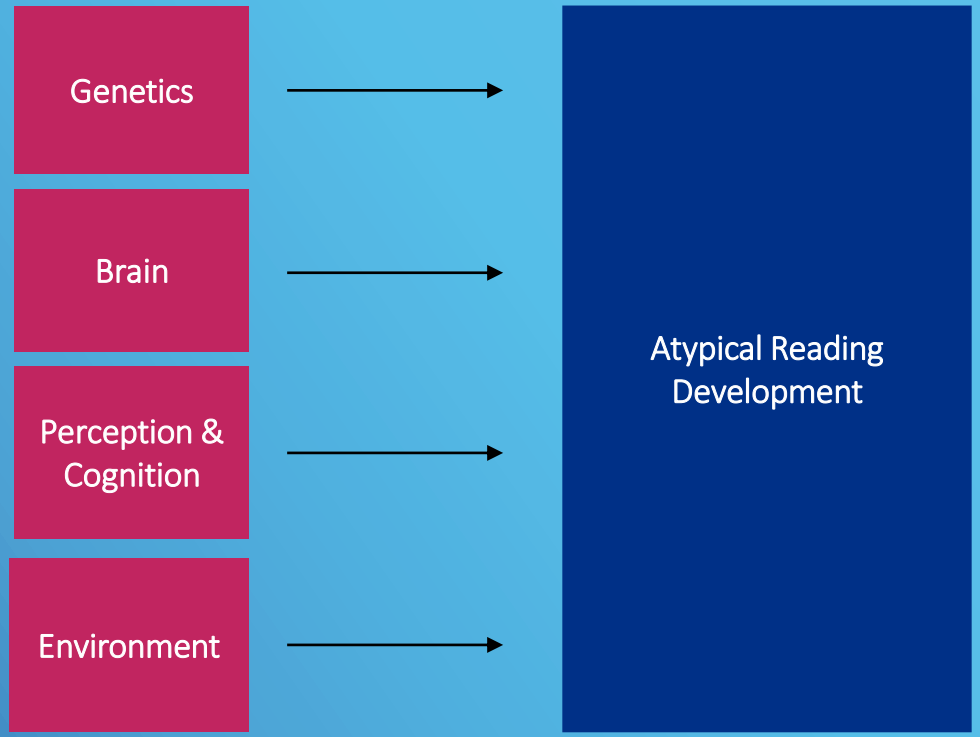
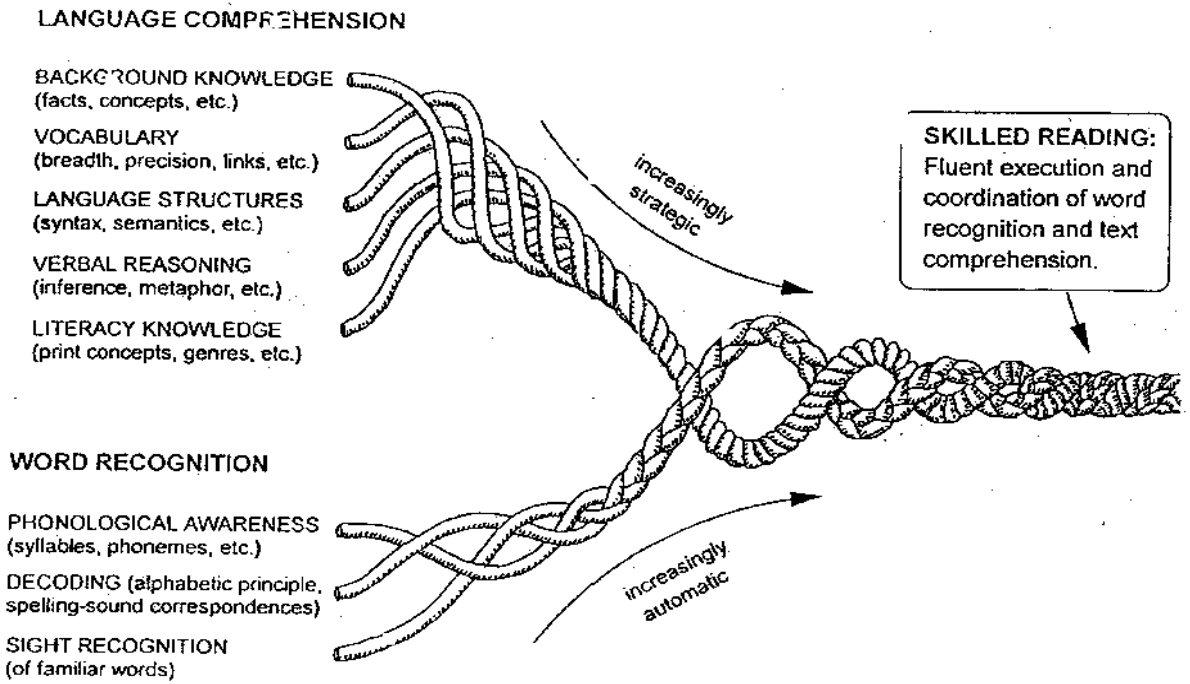
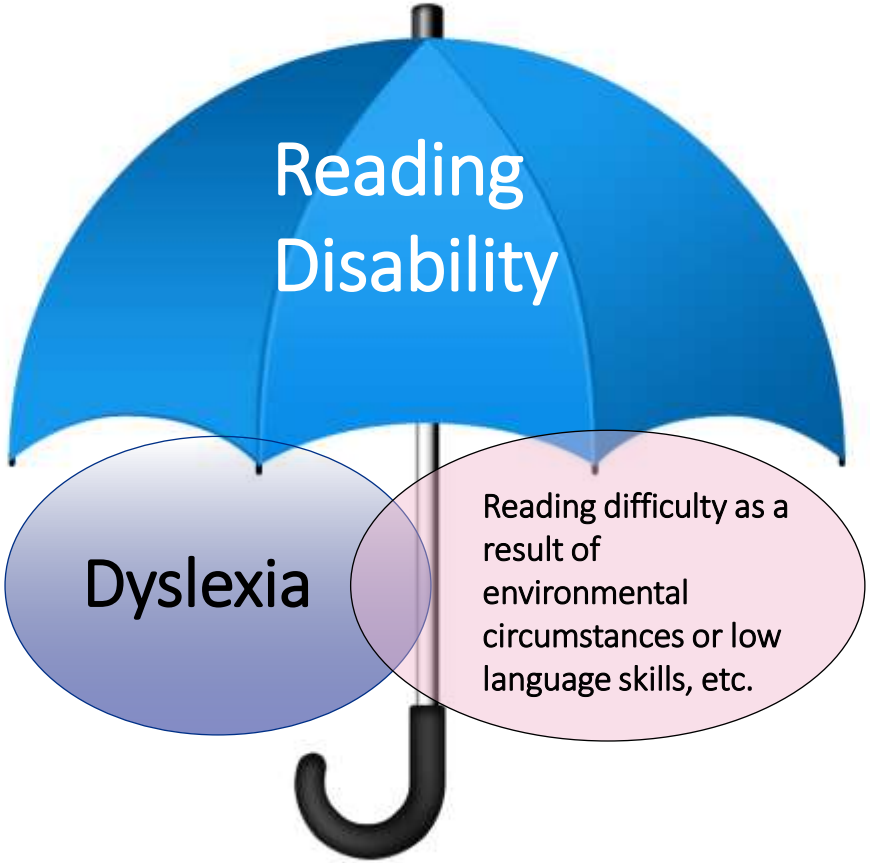
Factors contributing to atypical reading development



The Many Strands that are Woven into Skilled Reading

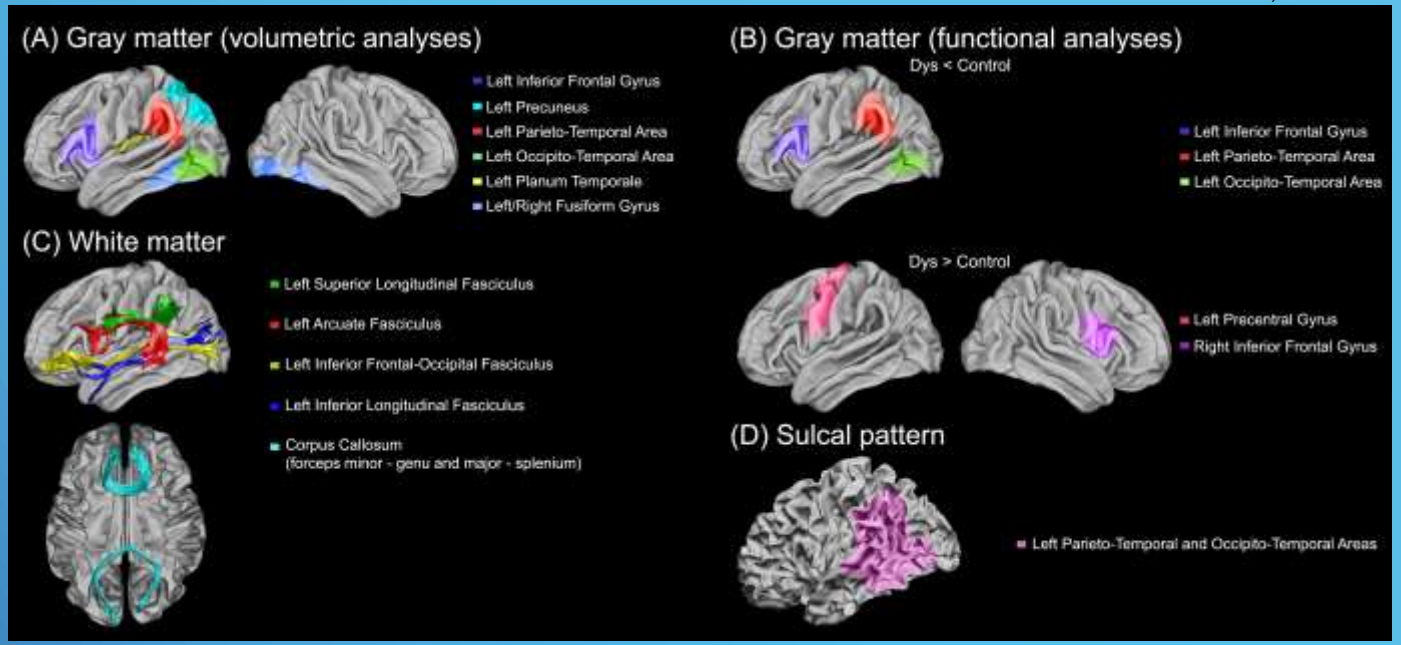
(Scarborough, 2001)



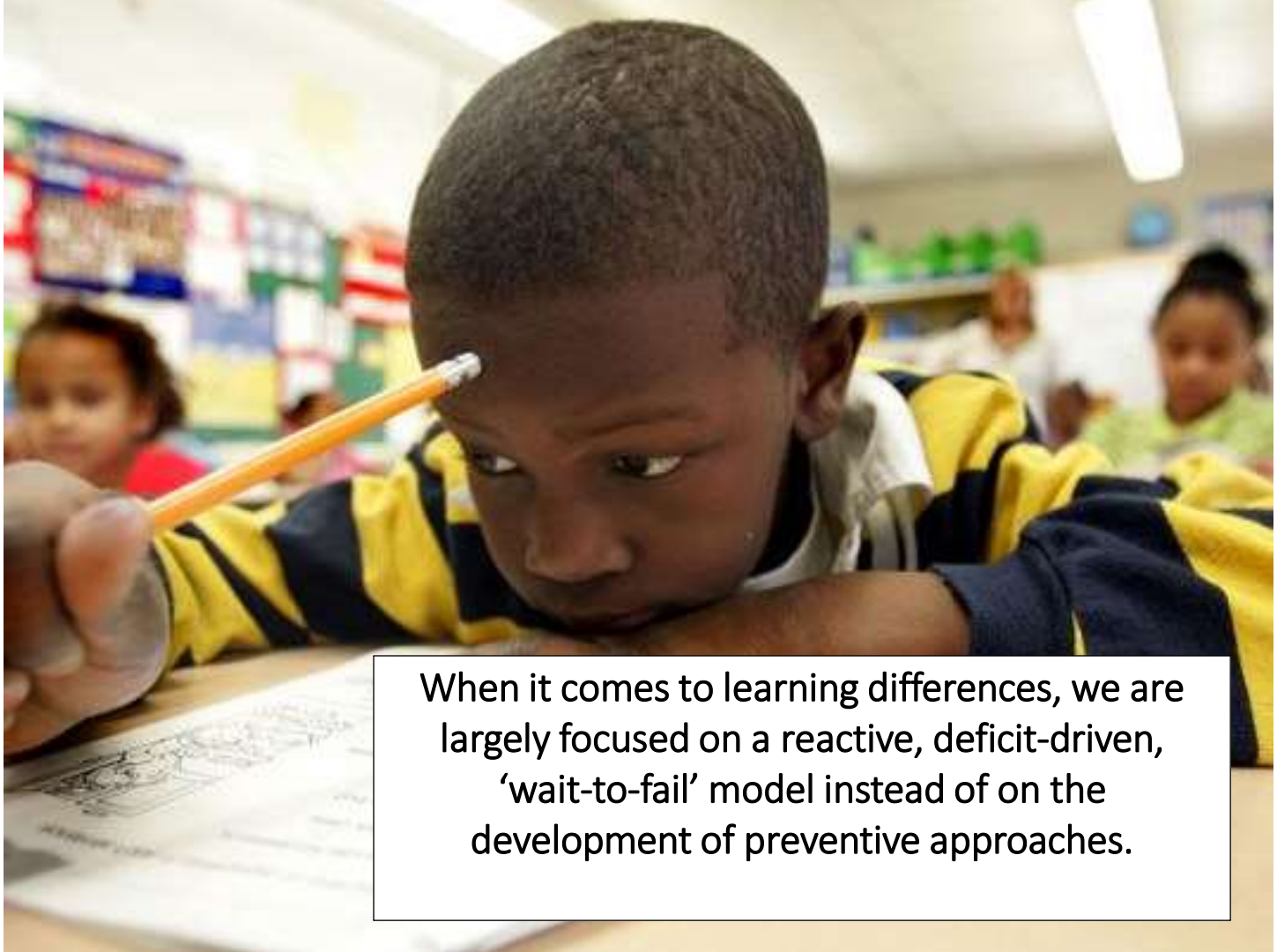

Reading Disability
Dyslexia
Reading difficulty as a result of environmental circumstances or low language skills, etc.

Structural and functional brain alterations in struggling readers

Ozernov-Palchik et al; 2016



[e.g., see Meta-analyses: Richlan et al., 2011, 2013; Linkerdoerfer et al., 2012, Martin et al., 20015]



When it comes to learning differences, we are largely focused on a reactive, deficit-driven, ‘wait-to-fail’ model instead of on the development of preventive approaches.

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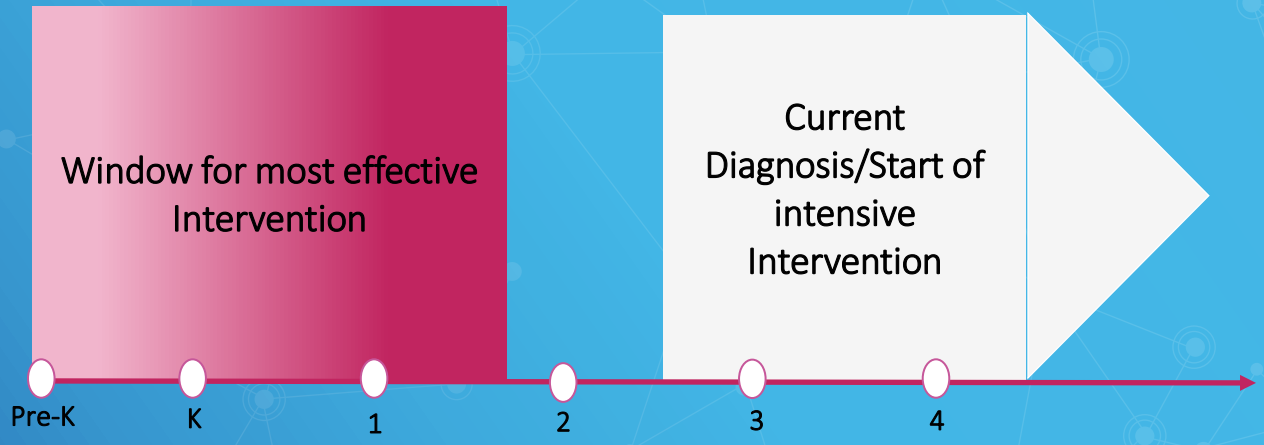
The ‘Dyslexia’ Paradox (“the wait to fail approach”)

A reading disability is generally diagnosed after the most effective intervention window

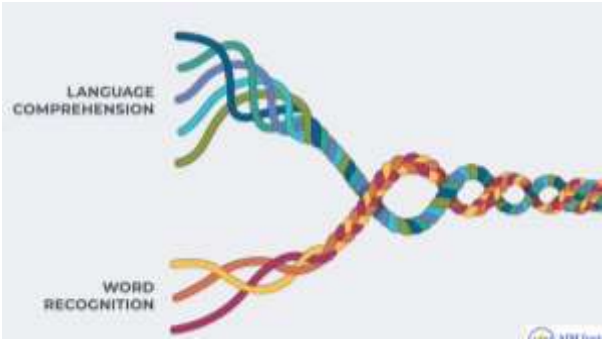


Ozernov-Palchik, et al., 2016

Early behavioral predictors of reading difficulties/dyslexia

Key childhood predictors of reading problems (e.g., Elbro et al., 1998; Scarborough, 1998, O'Connor & Jenkins, 1999; Lyytinen et al., 2001; Catts et al., 2001, 2015; Schatschneider et al., 2004, Pennington et al., 2001; Compton et al., 2006; Stanley et al., 2018):

- Phonological awareness
- Pseudoword repetition
- Rapid automatized naming
- Letter (sound) knowledge
- Expressive/receptive vocabulary
- Oral listening comprehension



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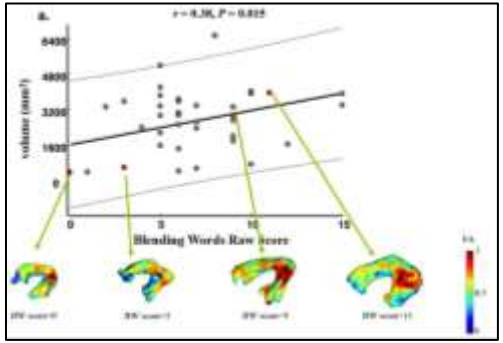
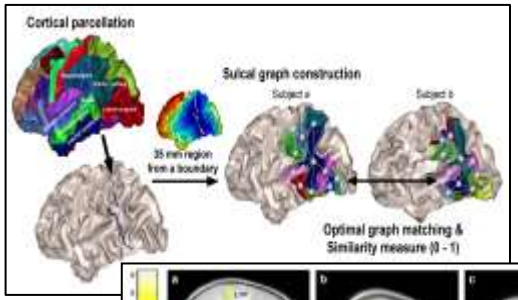
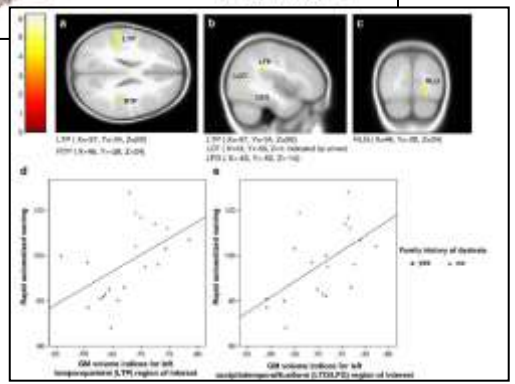
Brain alterations predate formal literacy instruction



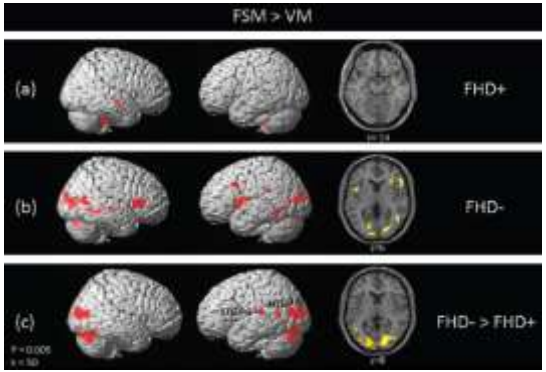
Saygin et al., 2013



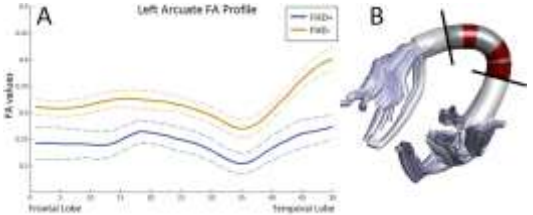
Im et al., 2015



Raschle et al., 2010



Raschle et al., 2012



Langer et al., 2016

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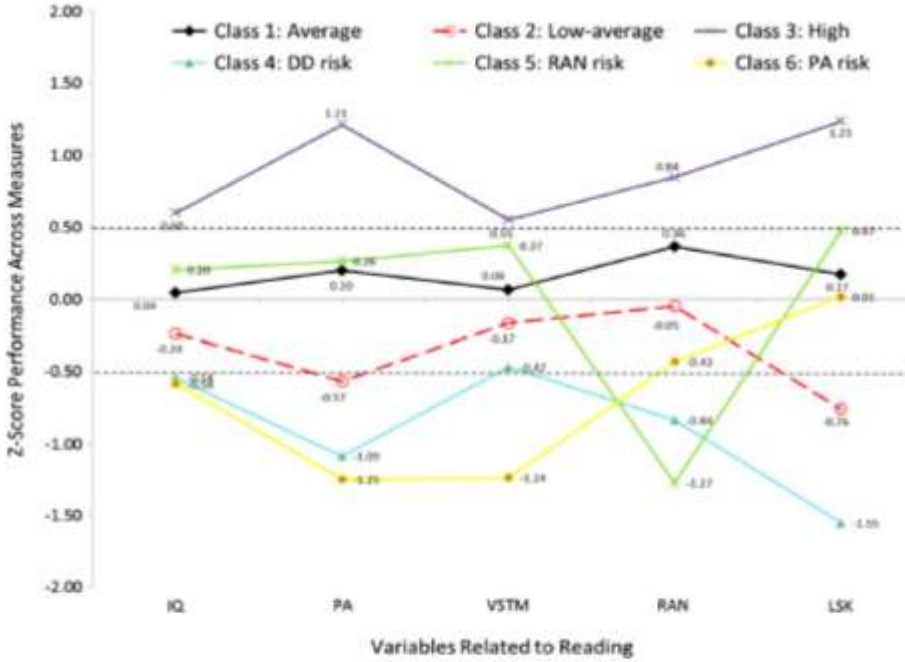
Six Distinct Cognitive Profiles of Early Reading

Ozernov-Palchik et al., 2017



[n = 1,215 children]

54% Caucasian
23% African-American
15% Hispanic
5% Asian
3% Other

Figure 1 *Latent Profile Analysis model for the identification of reading subgroups: optimal solution. Raw scores were transformed to z-scores on all variables. PA: phonological awareness, VSTM: verbal short-term memory, RAN: rapid automatized naming, LSK: letter sound knowledge.*

Identify who is at risk

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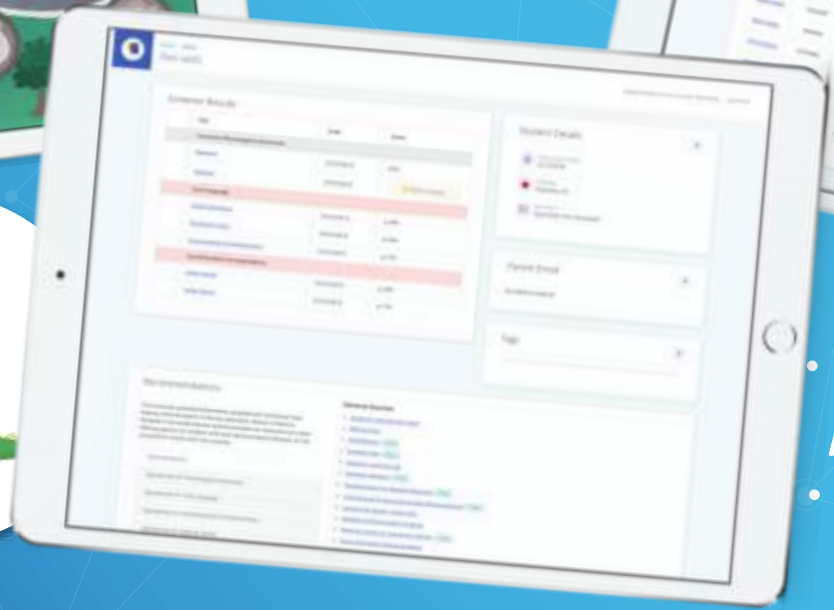
Provide tools for the "What's next"

Screen → **Action Plan** → **Support**

Screener

Dashboard



Resources

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EarlyBird Screener

- Engaging game experience
- Child Self-Administered
- 20 minutes
- Tablet-based, touch screen
- Auto-Scoring
- Appropriate for pre-readers
- Evidence Based

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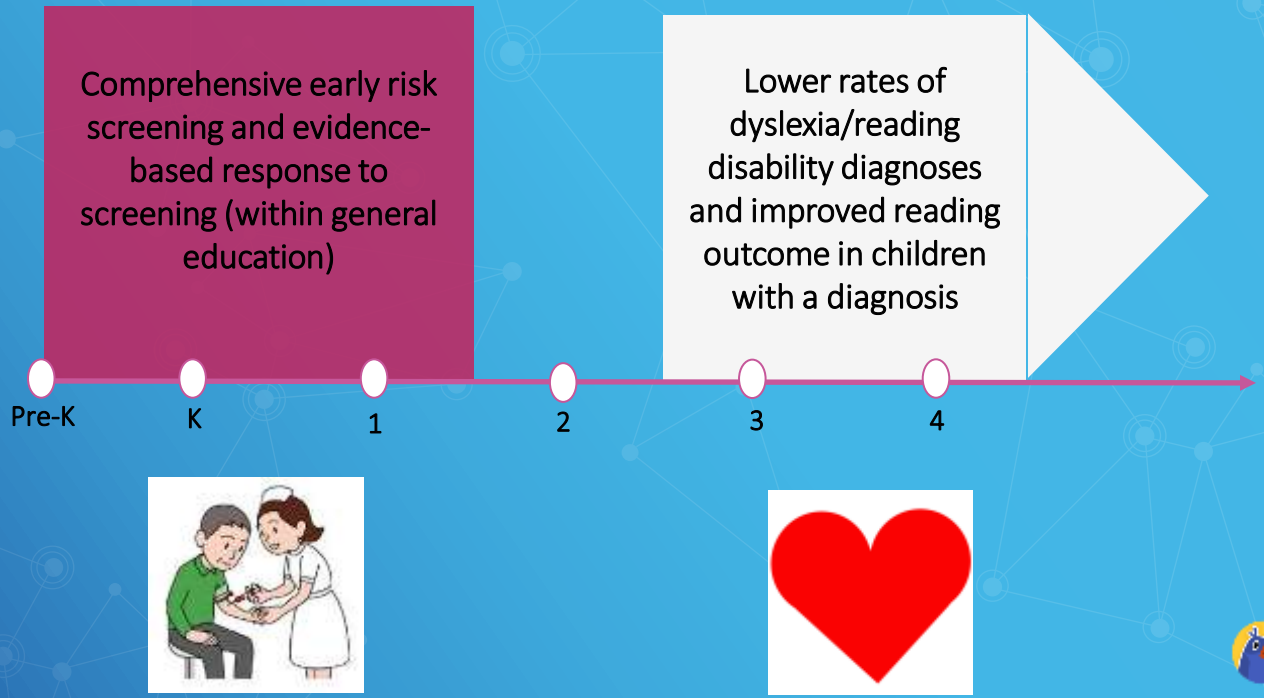
Solving the Dyslexia Paradox

Replacing “the wait to fail approach” with a support model



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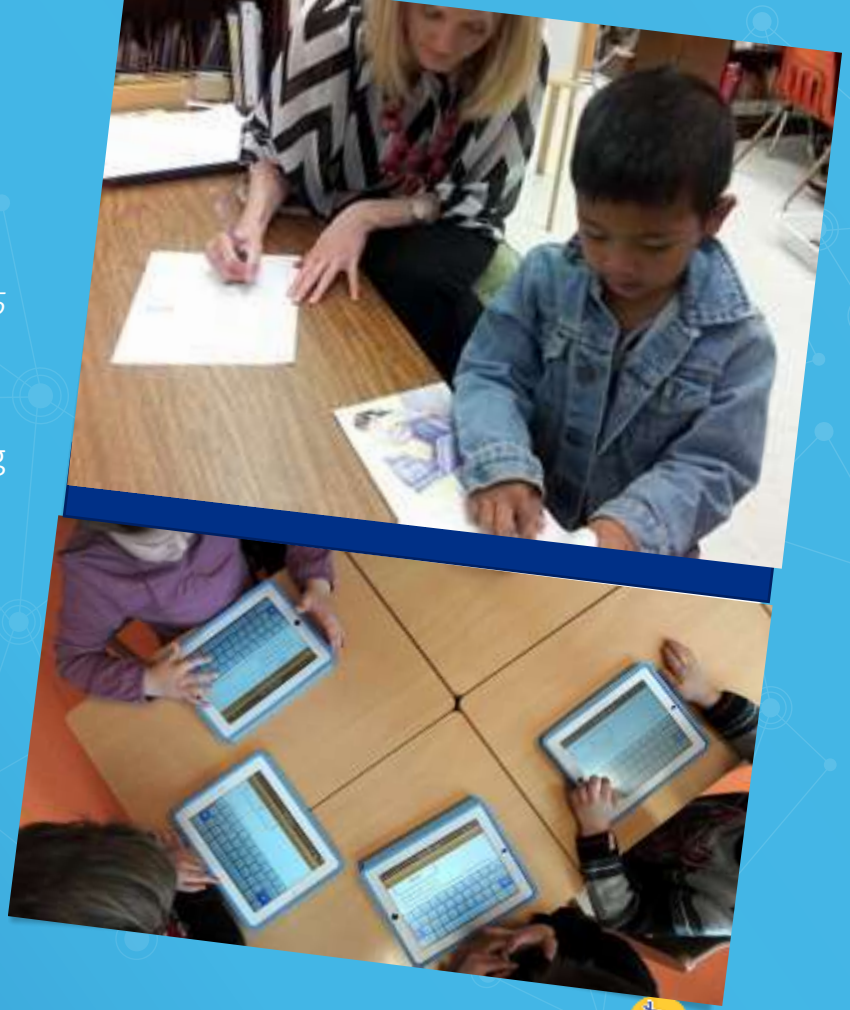
Schools recognize and appreciate EarlyBird advantages

- Assesses child, and saves teacher time
  - *"1:1 is so difficult, I can administer this in groups of 5 students and screen my whole class in less than 2 hours"*
- Comprehensive – dyslexia and general word reading
  - *#1 advantage seen by administrators – trying to streamline the multitude of screeners, tools and checklists using now*
- Engaging

  "The children liked PIP and the pacing was good. It's so much more engaging than what we are currently using."



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Boston Children's Hospital's Approach to Developing the Early Literacy Screener

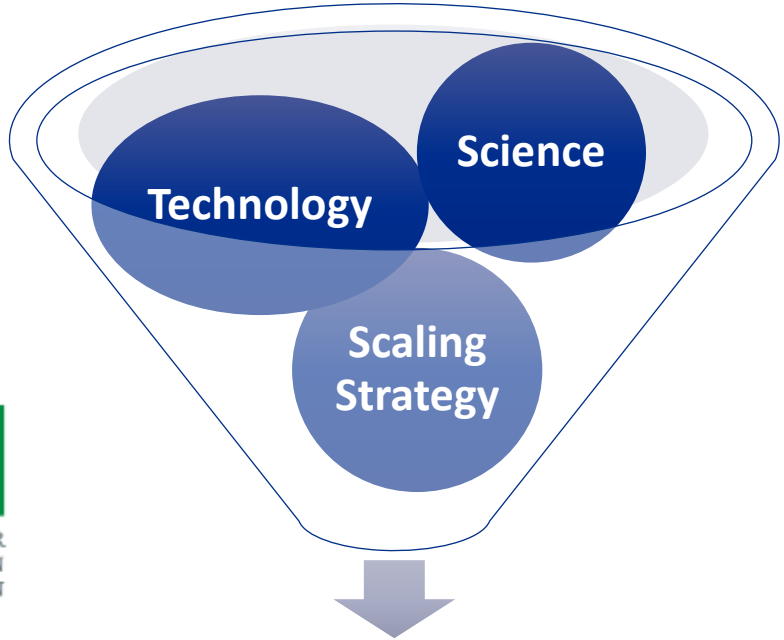
Poses Family Foundation
Imagine. Collaborate. Transform.

The Peter and Elizabeth C. TOWER Foundation

Tremaine Foundation

OAK FOUNDATION

HECKSCHER FOUNDATION for CHILDREN



The Leventhal Fund

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National Center on Improving Literacy
For Parents & Families
For Schools & Districts
For State Agencies
Tools & Resources
News
About
Contact
Home
State of Dyslexia
Explore dyslexia legislation and related initiatives in the United States of America.
Select a state from the map or the drop-down for an overview of legislation, requirements, and initiatives.
Select a State
HAS DYSLEXIA LEGISLATION
REQUIREMENTS
Screening
Pre-service
In-service
Intervention
All of the above
HAS LITERACY SIMR
WA
OR
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SCREENED

What should early screening look like?

We recommend eight key characteristics when determining an optimal screening battery for an individual classroom, school, or district.

- **S** hort
- **C** omprehensive
- **R** esourceful
- **E** arly
- **E** SL/Dialect Inclusion
- **N** eurobiology/Genetics
- **E** vidence-based response to screening
- **D** evelopmentally appropriate

Gaab, 2017 (IDA, Examiner)

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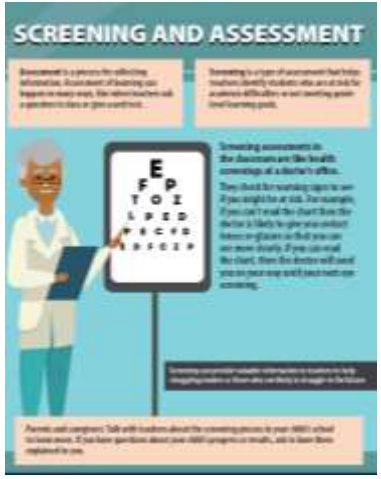
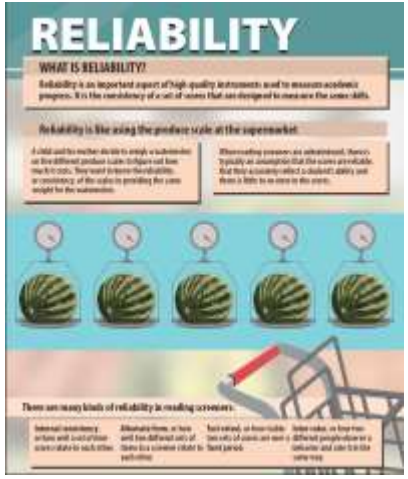
Important factors to consider when selecting a screener





National Center on Improving Literacy

https://improvingliteracy.org/brief

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Jennifer Curtis-Whipple, Ed.D.
Superintendent

Weymouth PUBLIC SCHOOLS

Weymouth Public Schools

- Suburban Boston, MA
- 6,000 students
- One Preschool and 8 Primary Schools

Extensive Education Leadership Experience

- Superintendent - 4 years; Assistant Superintendent - 2 years
- Former Principal, Academy Primary School, Weymouth
- Ed.D., Northeastern University, Curriculum
- Adjunct Professor, Curry College

Specialized background in Literacy

- Literacy Coordinator, Special Ed and General K-2 Teacher
- Advanced Certification in Orton-Gillingham, Lindamood-Bell, Telian

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Ways to engage:

- School Districts and teachers can raise their hands for the next cycle of Early Bird pilots
- Funders can support ongoing research and evaluation
- Investors can consider early venture opportunities

Thank you!

www.earlybirdeducation.com

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Questions & Discussion

Upcoming GLR Learning Tuesdays Webinars

SPECIAL WEBINAR

Bringing Noggin to Local Communities: A Special Opportunity for GLR Communities

Tuesday, May 12, 12:30 p.m. ET/9:30 a.m. PT

EMERGING MODELS WEBINAR

Early Childhood Innovation for Impact in a Crisis: A Show+Tell Pop Up with Promise

Tuesday, May 12, 3 p.m. ET/12 p.m. PT

PARTNERS WEBINAR

The Science of Reading, Part 2: Applying the Science in the Classroom

Tuesday, May 19, 3 p.m. ET/12 p.m. PT

GLR Learning Tuesdays

The Campaign for GRADE-LEVEL READING