BELOW BENCHMARK, NOW WHAT?

Integrating diagnostic assessment into your RTII/MTSS Process

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Goals of the Dyslexia Screening and Early Literacy Pilot

- To identify students early, in Kindergarten mid-year, with reading difficulties.
- To provide an “intensive evidence-based” instructional program in conjunction with a core reading program earlier to improve overall reading skills for at risk students.
- To reduce special education costs to school districts by providing intensive evidence based instruction.

Summary of Required Activities

- Screening in K to 2nd grade.
- Provision of an "evidence-based" reading program and intensive intervention in regular education, beginning in Kindergarten mid-year.
- Administration of brief diagnostic assessments to better understand nature and severity of risk for reading difficulties.
- Professional development for staff in assessment and in "evidence-based" reading programs.
- Participation in evaluation and data reporting.

Dyslexia Screening and Early Literacy Intervention Pilot.

- Why this pilot?
  - Between 15 and 20 percent of students experience academic failure due to reading problems.
  - Approximately 80% of children in special education are there due to reading difficulties.
  - The majority of students who struggle with reading experience difficulties at the *word reading level*.
  - Dyslexia, characterized by *difficulties with accurate and/or fluent word recognition, with decoding, and with spelling,* is the most common and widely researched of all reading disabilities, and has documented the effectiveness of systematic, intensive, cumulative instruction in word recognition/decoding.

Status of Pilot

- School districts have been selected.
- Screening instrument (DIBELS NEXT) has been selected, with focus on DIBELS components which best predict reading struggle.
- Intervention program will be Orton-Gillingham based; training to begin this summer.
- Diagnostic assessment, a brief assessment to better understand readers at risk, has been designed.
- Effectiveness to be assessed by comparison with matching non-participating school districts.
- Kindergartners entering in fall 2015 to be first class to participate.

Pilot Districts

- Bentworth
- Blue Mountain
- Crawford Central
- Delaware Valley
- Ellwood City
- Governor Mifflin
- Millcreek Township
- Pen Argyl

Screening and Diagnostics

Screening

- Dibels Next “Former Goals”
  - All kindergarten students 3 times per year
  - January screening determines intervention eligibility

Diagnostics

- CTOPP 2- two subtests Phonological Awareness: two subtests: Blending and Elision
  - Rapid Naming: two subtests: Rapid Object Naming and Rapid Color Naming
- PPVT4

IMPORTANCE OF IDENTIFYING STUDENTS AT RISK FOR READING FAILURE ***EARLY***

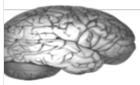
- Because several studies have shown that early intervention (Kindergarten through second grade) is more effective than later intervention (middle school).
- Because several studies have shown that when older children (middle school) receive intensive evidence-based intervention, they make much slower progress than younger children and fail to ‘close the gap.’
- **Take home message**: *it is far more effective (and less expensive both financially and in terms of human capital) to provide the right intervention early!*

WHY IS EARLY INTERVENTION SO MUCH MORE EFFECTIVE?

- Research suggests that the brain is more ‘plastic’, more amenable to change, at younger ages.
- Because children who learn to read at the ‘expected’ age (about age 7) increase their word recognition and knowledge of printed language rapidly as they read, and thus the gap between ‘typical’ readers and delayed readers widens quickly.
- Remember: Knowledge of spoken sounds at age 7 predicts reading skills at age 9, meaning that risk for reading struggles can be predicted at age 7, and even earlier—most children with delayed Speech and Language will require evidence-based instruction for reading.

The *wrong* early intervention causes problems!

- Because you lose time while the brain is most open to learning.
- Because the child becomes discouraged as others move ahead.
- Because it is much easier to learn through appropriate early intervention than it is to close a gap.
- Because learning is a neurological process and because the brain is malleable, if the child is taught through an ineffective method he *must first unlearn that method before learning the evidence-based method.*



Learning From Neuroscience:

- Advances in neuroscience of learning
  (Evidence: research on typical children)
- Brain changes more quickly than once thought
  (Evidence: Changes in brain function with intervention)
- Brain matters for **early identification and intervention**
  (Evidence: Individual differences in cognition and learning)
- Brain matters for **differential diagnosis** of disability
  (Evidence: Different brain patterns in children with same overt behaviours)
- Brain matters for **targeted intervention** for diverse learners
  (Evidence: Cognitive influences on intervention response)

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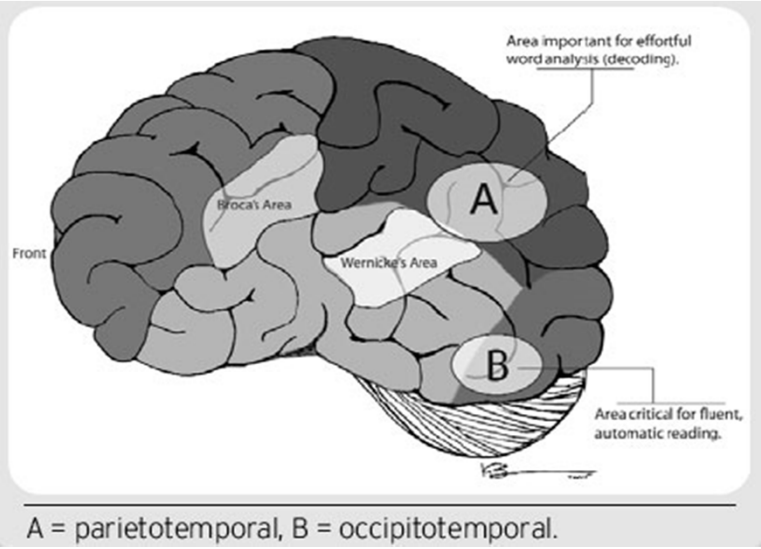
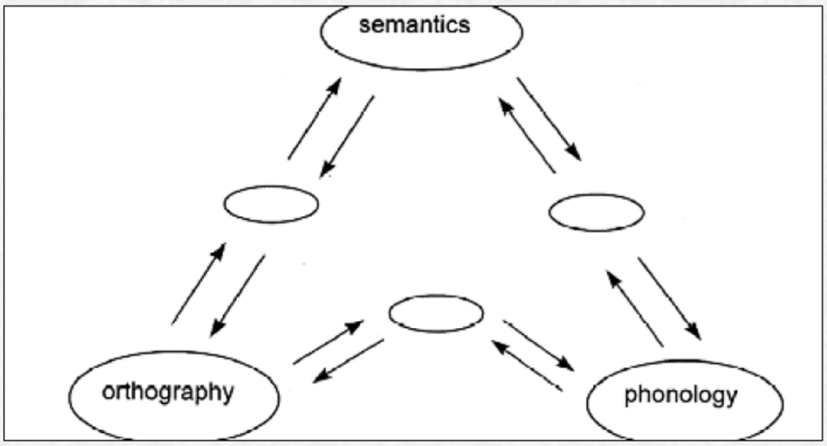
How the Brain Reads



A = parietotemporal, B = occipitotemporal.

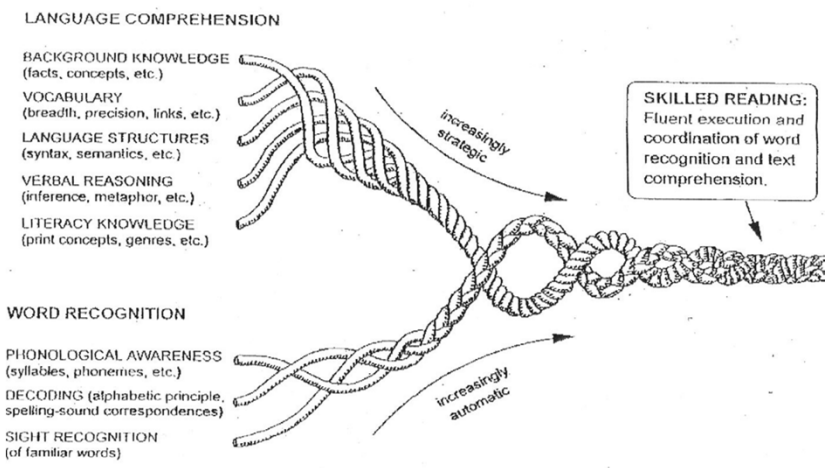
The cognitive challenge of learning to read



Harm and Siedenberg, 2004

Reading is Rocket Science!

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



Neuropsychology of Word Reading

Word Reading Skill	Brain Areas/Functions
• Phonological awareness (letter sounds) • Symbolic representation (letter shapes) • Phoneme-grapheme Map (alphabetic principle) • Sequencing (segmenting or blending words) • Word attack (sound out) or sight (whole) word reading	• Left superior temporal processes phonemes • Left inferior occipital-temporal processes letters • Left angular gyrus makes sound-symbol associations • Broca's, basal ganglia, occulomotor circuits • Angular gyrus "dorsal stream" or inferior temporal "ventral stream"

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Some of The Cognitive Skills Necessary for Reading

- **Phonological Awareness**: the awareness of sounds in *spoken* language. (a language skill, necessary for learning the sound-symbol associations)
- **Age-appropriate speech and language development:** necessary for Phonological Awareness, for learning sound-symbol associations, and for reading comprehension (vocabulary).
- **Auditory processing:** essential for processing and learning language, words, and concepts presented orally, and for following instructions.
- **Oral comprehension:** essential foundation for reading comprehension.

More of The Cognitive Skills Necessary for Reading

- **Verbal memory (short-term and long-term):** necessary for learning to automaticity the phonemic sounds associated with letters and letter blends, for blending sounds, for remembering what you have read so you can comprehend, for developing lexical and background knowledge.
- **Visual memory (short-term and long-term**): necessary for learning to automaticity the visual symbols (letters, letter dighraphs) and for fluent word recognition.
- **Working Memory, both verbal and visual:** necessary for decoding multisyllabic words, for sentence and passage comprehension, and for oral retelling.

And still more More of The Cognitive Skills Necessary for Reading

- **Orthographic processing**: visual processing is essential for processing letters, letter digraphs, and words, for reading charts and graphs, for understanding spatial concepts.
- **Processing speed/rapid naming:** necessary for fluency in decoding and in word recognition.
- **Retrieval fluency:** necessary for fluent retrieval of word meaning, of past uses and semantic meanings of words, and of contextual information to aid comprehension.
- **Visual/spatial processing**: plays a role in comprehension (‘seeing the big picture’).

Looking at Screening Data Diagnostically

- **What are typically available screening data?**
  - History of speech and language intervention—children with such history are at *high risk* for reading problems.
  - Kindergarten screening data.
  - DIBELS or AIMSWEB data.
  - DRA or MAP scores.
  - Curriculum based assessments.
  - Classroom-based formative assessment data.

Important information about DIBELS

- Although all subtests should be administered, some are more critical than others in terms of predicting reading difficulties.
- Two subtests are strong predictors of future reading skills: Letter Naming Fluency (LNF) (Kindergarten and fall of first grade) and Nonsense Word Fluency (NWF) (first grade winter and spring, all three administrations second grade).
- LNF is not an instructional goal, but is thought to tap processing skills critical to learning to decode words, such as verbal and visual memory, processing speed.
- DIBELS is a screener, diagnostic assessments are necessary to determine intervention.

Some Diagnostic Assessments

- Phonological Processing:
  - Process Assessment of the Learner II
  - Comprehensive Test of Phonological Processing II
- Orthographic Processing:
  - Process Assessment of the Learner II
  - Comprehensive Test of Phonological Processing II
  - Test of Silent Word Reading Fluency 2
  - Test of Orthographic Processing
- Vocabulary/ Lexical Knowledge:
  - Peabody Picture Vocabulary Test
  - Expressive One Word Picture Vocabulary Test
  - Kaufman Survey of Early Academic and Language Skills
  - Comprehensive Assessment of Speech and Language

CASE STUDIES OF THE USE OF AVAILABLE SCREENING DATA TO PICK UP CHILDREN AT RISK FOR READING DIFFICULTIES

MICHAEL-A Weakness in Phonemic Awareness

Pre-K Screening

- •Vocabulary: Proficient
- •Concepts of Print: Proficient
- •Rhyming: Below Basic

Kindergarten Screenings

AIMS Web BOY

- Letter Naming Fluency: Proficient
- Letter Sound Fluency: Proficient

- AIMS Web EOY
  - Letter Naming Fluency: Proficient
  - Letter Sound Fluency: Proficient
  - Phoneme Segmentation Fluency: Below Basic
  - Nonsense Word Fluency: Proficient

MADELINE-grade five, struggling with comprehension

- Background history: developmental history normal, except for language. History of speech and language services for six months to address dysfluency. Followup S & L evaluations indicated average and above average S & L.
- Observations since preschool: difficulty following multi-step instructions, in classroom, in gym and at home.
- Kindergarten and first grade: described as a competent reader who used a variety of strategies-pictures, context, decoding-to read. DIBELS first grade at grade level. DIBELS second grade at grade level, with exception of Retelling. DRP second through fourth grade at grade level. PSSA fourth grade Advanced for reading.

M: what can we learn from cognitive assessment?

- BUT---while M reads grade level material for pleasure, retelling and comprehension are weak.
- Reading was Instructional at grade level, at grade level for word recognition, slightly below grade level for decoding, but when *reading passages M did not decode novel words, instead guessing*.
- Intellectual abilities average/above average.
- Strengths/at age level: processing speed/rapid naming, visual memory, math achievement, written language, executive functions.
- Weaknesses: short- and long-term verbal memory, phonological memory, auditory processing.

- **Evaluation observations**: frequently asked for repetition and explanation of instructions, benefited from repetition, explanation, practice and exposure.
- **Conclusions?**
- Behaviors suggested possibility of an auditory processing weakness, weakness which interferes with functioning in classroom.
- Decoding not automatic; could decode isolated words but not novel words in passages.
- Working Memory weakness impacts reading for comprehension, multi-step mathematics and following classroom instructions.

- **Lessons?**
- The history of language delay, persistent difficulty following verbal instructions, weak Retelling on DIBELS were all indicators of risk. Intellectual abilities, coping skills and good social skills masked reading weakness. Recommend an auditory processing examination, *explicit instruction in the phonetic system and in morphology, and in decoding*, classroom accommodations for auditory processing weakness, possible exemption from a second language requirement.

DANIEL-a nonresponder

- **Background history:** third child, both older siblings diagnosed with dyslexia and with attentional difficulties (Inattentive type). Birth induced early due to eclampsia, no health problems. Health history without complications. Language developed early, but articulation was and continues to be poor. Mild weakness in complex language skills. Not eligible for early intervention in language. Motor development normal, but fine-motor skills quite weak; received OT in preschool through second grade. Strong social skills.

- **Kindergarten:** 30 minutes a day of Fundations. At end of Kindergarten could not read pre-primer material, was not yet able to name all upper-case letters or numbers.
- **First Grade**: 30 minutes a day of Fundations and the Storytown series in Learning Support. Read stories aloud while timed. On standardized test all scores at grade level except Reading Fluency (14%). Described as 'non-fluent reader' who has to read several times to decode and recognize words, and then further reread for meaning.

D: what can we learn from cognitive assessment?

- Intellectual abilities average/above average.
- Strengths: vocabulary, pattern recognition, verbal memory for stories, visual memory.
- Weaknesses: Block Design, visual discrimination, form constancy, Processing Speed, visual sequential memory.
- Reading achievement: word recognition 29%, halting and dysfluent. Reading comprehension (with rereading) 32%, read word by word, reread several times, could not read ½ the words. Observations as or more important than the score. Oral reading fluency 4%. Listening comprehension 77%.

- **Lessons?**
- Significant weakness in processing and remembering visual material (letters, digraphs, words).
- Very slow retrieval/processing speed/rapid naming.
- Fundations in K and first addressed phonological awareness, which is not a weakness. D needed a systematic, intensive, multi-sensory evidence-based instructional reading program, a program which also emphasized fluency, starting in Kindergarten At this point he needs it daily, individually or in a group of two, throughout the year. Focus should be on teaching him to read fluently, not on comprehension; vocabulary and oral comprehension are good.

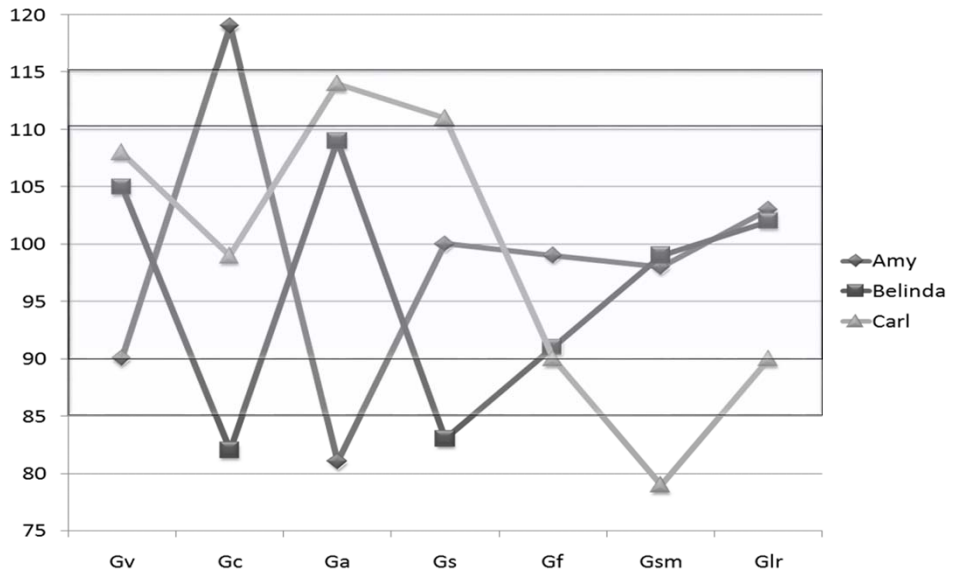
Reading Recovery Results

- Amy, Belinda, and Carl are making some gains in Reading Recovery
- *No appreciable change in reading performance*
- Tier II "nonresponders"

- **WHAT DO SCHOOLS DO?**
  - move to Tier III?
  - conduct a "diagnostic assessment"?

Mascolo and Flanagan (2011)

Different Cognitive Ability Profiles Suggest Different Interventions



Amy's Profile

- ***Phonologically-based Reading Disability*** **(also referred to as Dysphonetic Dyslexia)**
- Interventions selected should be based, in part, on the developmental level of the student
  - Intervention should include an ***explicit phonological approach***, especially with younger children (e.g., Wilson Reading System; Fundations; Fast Forword; Earobics I; Alphabetic Phonics [Uhry & Clark, 2005]).
  - Modality based: Horizons (visual phonics approach). Lindamood (tactile cues).
  - Secondary Level (morphological cues emphasized - Read 180)

For more information see Steve Feifter (2012), Tailoring Interventions for Students with Reading Difficulties, in Mascolo, Flanagan, & Alfonso (Eds.) (2012). ***Essentials of Planning, Selecting, and Tailoring Interventions for the Unique Learner*****. Hoboken, NJ: Wiley (Expected Publication Date: 1/2014).**

Belinda's Profile

- ***Orthographically-based Reading Disability*** **(also referred to as Surface Dyslexia; possible Speech Language Impairment**

- Interventions selected should be based, in part, on the developmental level of the student
  - Intervention should focus on automaticity and fluency goals (not an explicit phonological approach);
  - Build sight words.
  - Early ages: RAVE-O; Read Naturally; Over Age 12: Read 180; Wilson.

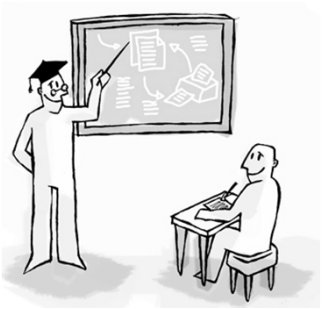
For more information see Steve Feifter (2012), Tailoring Interventions for Students with Reading Difficulties, in Mascolo, Flanagan, & Alfonso (Eds.) (2012). ***Essentials of Planning, Selecting, and Tailoring Interventions for the Unique Learner*****. Hoboken, NJ: Wiley (Expected Publication Date: 1/2014).**

Carl's Profile

- *SLD in Basic Reading Skills* – underlying Working Memory deficit
- Minimize the effects of working memory demands in reading interventions
  - Modality based: Horizons (visual phonics approach). Lindamood (tactile cues).

Carl needs strategies for Gsm deficits (memory span; working memory)

- **Give Directions in Multiple Formats:**
  - visual and verbal
  - encourage him to paraphrase directions and explain what they mean
  - give examples of what needs to be done



Glenda Thorne, Ph.D., "10 Strategies to Enhance Students' Memory"; CLD.org

Carl needs strategies for Gsm deficits (memory span; working memory)

- **Teach Students to Over-learn Material**
  - several error-free repetitions are needed to solidify the information
- **Teach Students to Use Visual Images and Other Memory Strategies**

Glenda Thorne, Ph.D., "10 Strategies to Enhance Students' Memory"; CLD.org

RESOURCES

- **Essentials of Planning, Selecting, and Tailoring Interventions for Unique Learners**, Mascolo, J.T., Alfonso, V.C. & Flanagan, D.P. (Wiley 2014)
- **Essentials of Dyslexia Assessment and Intervention, Mather**, N. & Wendling, B.J. (Wiley 2012)
- Fiorello, C.A., Hale, J.B., & Snyder, L.E. (2006). *Cognitive hypothesis testing and response to intervention for children with reading problems.* ***Psychology in the Schools****, 43, 835-853.*
- Flanagan, D.P., Ortiz. S.O., Alfonso, V.C., & Dynda, A.M. (2006). *Integration of response to intervention and norm-referenced tests in learning disability identification: Learning from the tower of Babel.* ***Psychology in the Schools****, 43, 807-825.*