WHEN OLDER KIDS CAN’T READ: DYSLEXIA INTERVENTION AT MIDDLE AND HIGH SCHOOL

Louisa Moats, Ed.D.
DuBard Symposium, 2014

Critical Questions

• Who needs help?
• Why do they need help?
• What kind of help do they need?
• Is the help helping?
• If not, what needs to be changed?

Who Are We Concerned About?

• 11-17% of students are dyslexic
• 24% are “below basic” in reading nationally (NAEP) at 8th grade
• 60% or more of high poverty kids are poor readers

What’s Unique about Middle and High School Poor Readers?

• History of failure and frustration
• Hopelessness and lack of trust in own ability to succeed in academics
• Maladaptive habits (e.g., reliance on guessing, faking, avoiding)
• High value placed on peer interaction
• New awareness of larger world and the future, coupled with knowledge deficit

Texts are More Difficult After Grade 5

• Students are expected to learn at least 3,000 new word meanings per year from reading and direct instruction, just to keep up
• Words are topic-specific and low-frequency
• More background knowledge is required to make inferences and construct the meaning of the whole text
• Sentences are longer, more complex, and contain more ideas
• Stamina and persistence are expected; meaning is constructed over longer segments of text

Cumulative Deficits in Language Exposure

A student at the 10th percentile reads about 60,000 words a year in 5th grade
A student at the 50th percentile reads about 900,000 words a year in 5th grade
Average students receive about 15 times as much practice in a year
The Reading Rope

Multi-component Approaches are Best

- Strong word study and basic skills remediation
- Direct teaching of language comprehension
- Accommodations for presentation of information and for time/manner of response
- Assistive Technology (text to speech translation; word prediction; vocabulary support; annotation tools)

Important Components of Intervention, 6th +

<table>
<thead>
<tr>
<th>Written Expression</th>
<th>Text Comprehension</th>
<th>Vocabulary</th>
<th>Grammar, Usage, and Syntax</th>
<th>Advanced Word Work (Morphology)</th>
<th>Fluency</th>
<th>Basic Word Work</th>
<th>Phonological Awareness</th>
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Manifestations of a Word Recognition Problem

- Guesses from context
- Is "stymied" by unfamiliar words
- Confuses similar sounds, symbols, and/or words
- Inaccurate reading impairs comprehension and fluency
- Slow to develop "sight word" habits
- Tires easily, looks away, is easily frustrated, hates to read

A Framework for Word Study Lessons

<table>
<thead>
<tr>
<th>Components</th>
<th>Time</th>
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<tbody>
<tr>
<td>State Goal and Purpose</td>
<td>1 minute</td>
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<tr>
<td>Review Previous Topic</td>
<td>5 minutes</td>
</tr>
<tr>
<td>Direct Teaching of Concept</td>
<td>5 minutes</td>
</tr>
<tr>
<td>Practice with Concept</td>
<td>10 minutes</td>
</tr>
<tr>
<td>Spell in Dictation</td>
<td>10 minutes</td>
</tr>
<tr>
<td>Read in Connected Text</td>
<td>10 minutes</td>
</tr>
<tr>
<td>Assign Homework, Frequent Practice</td>
<td>2 minutes</td>
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Emphasizing the History of English

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<tr>
<th>Language of Origin</th>
<th>Features of Words</th>
<th>Examples</th>
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</thead>
<tbody>
<tr>
<td>Anglo-Saxon (Old English)</td>
<td>Short, one syllable; common words;</td>
<td>sky, earth, moon, sun, water,</td>
</tr>
<tr>
<td></td>
<td>irregular spellings</td>
<td>sheep, dog, horse, cow, hen, head</td>
</tr>
<tr>
<td>Norman French</td>
<td>Soft c and g, soft &quot;ch&quot; (/sh/); special</td>
<td>genre, cousin, cuisine,</td>
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<tr>
<td></td>
<td>endings; words for food, fashion</td>
<td>century, peace, triage, rouge,</td>
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<td></td>
<td></td>
<td>baguette, machine, charlatan</td>
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<tr>
<td>Latin/Romance</td>
<td>Multi-syllable words with prefixes,</td>
<td>firmament, spectral, derivative,</td>
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<td></td>
<td>roots, suffixes; content words</td>
<td>solar, equine, aquarium, mammal</td>
</tr>
<tr>
<td>Greek</td>
<td>Combining forms; science and math</td>
<td>hyponosis, catastrophesy,</td>
</tr>
<tr>
<td></td>
<td>terminology; special spellings ph, ch, y</td>
<td>neuro- psychology, decathlon, chlорophyll</td>
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</tbody>
</table>

Teaching All Levels of English Orthography

<table>
<thead>
<tr>
<th>Language of Origin</th>
<th>Sound-Symbol</th>
<th>Syllable Patterns</th>
<th>Morpheme Structure</th>
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</thead>
<tbody>
<tr>
<td>Anglo-Saxon</td>
<td>Consonants</td>
<td>closed open</td>
<td>compounds</td>
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<tr>
<td></td>
<td>single, digraphs, blends</td>
<td>vowel-r</td>
<td>inflections</td>
</tr>
<tr>
<td>Vowels</td>
<td>short, long, -v-c-e, vowel team,</td>
<td>consonant -le</td>
<td>base words</td>
</tr>
<tr>
<td></td>
<td>vowel-r patterns</td>
<td>(oddities)</td>
<td>suffixes</td>
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<tr>
<td>Latin</td>
<td>Few digraphs or vowel</td>
<td>prefixes</td>
<td>few digraphs or vowel</td>
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<td>teams.</td>
<td>roots</td>
<td>teams.</td>
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<tr>
<td>Latin/Romance</td>
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<td>suffixes</td>
<td>Combining forms</td>
</tr>
<tr>
<td>Greek</td>
<td>ph for /f/ (graph)</td>
<td>suffixes</td>
<td>suffixes</td>
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<tr>
<td></td>
<td>ch for /k/ (chorus)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>y for /i/ (gym)</td>
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</tbody>
</table>

Vowel Spellings in English (Moats)

Mapping the Graphemes to Phonemes

<table>
<thead>
<tr>
<th>Word</th>
<th>Graphemes</th>
<th>Phonemes</th>
</tr>
</thead>
<tbody>
<tr>
<td>shrink</td>
<td>sh r i n</td>
<td>k</td>
</tr>
<tr>
<td>three</td>
<td>th r ee</td>
<td></td>
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<tr>
<td>mulch</td>
<td>m u l ch</td>
<td></td>
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<tr>
<td>pinch</td>
<td>p i n ch</td>
<td></td>
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<td>thrill</td>
<td>th r i ll</td>
<td></td>
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<tr>
<td>cinch</td>
<td>c i n ch</td>
<td></td>
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</tbody>
</table>

Six Syllable Types

1. Closed
   - pet, cats, in
2. Vowel-Consonant-e
   - slide, scare, cute
3. Open
   - ri-pen, a-pron
4. Vowel Team
   - teeth, high, show
5. Vowel - r
   - car, bird, her
6. Consonant -le
   - ap-ple, bun-dle

Spelling: Supply the Missing Syllable

Syllables with Digraphs:

- _________ble (thimble)
- _________ney (chimney)
- _________mer (shimmer)
- _________tle (whistle)
- _________ner (thinner)
Learning Meaningful Parts (Morphology)

- prefixes
- suffixes
- base words
- Latin roots
- Greek combining forms

**Examples:**
- innate
- nation, national
- nationalistic
- native, nativity, nativist
- nature, unnatural, naturalist

Word Building with Morphemes

<table>
<thead>
<tr>
<th>in</th>
<th>ible/able</th>
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<tbody>
<tr>
<td>per</td>
<td>ed</td>
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<tr>
<td>con</td>
<td>ion</td>
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<tr>
<td>contra/contro</td>
<td>ible/able</td>
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<td>intro</td>
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<td>sub</td>
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<td>re</td>
<td>ing</td>
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vers, vert

Teaching Sound, Symbol and Sense

- **miner** = mine + er (base word mine; noun suffix -er meaning “one who”; deletion of silent e when vowel suffix is added)

- **minor** = Indogermanic root “min” meaning “small”; Latin word meaning “small”; related to minus, mini, miniscule, diminish, diminutive, minority; antonym of “major”; can be a noun or an adjective

Routine for Reading Big Words

- Locate each sounded vowel (not silent e’s)
- Box familiar suffixes
- Circle familiar prefixes
- Use syllable knowledge to guess at vowel sounds
- Scoop the pencil under the syllables as the word is blended, left to right
- Say the whole word and see if it makes sense.

Syllabication for Spelling

predicting

underline vowels

predicting

circle/box any prefixes and suffixes

blend the syllables to say the word

1. Student says word
2. Student places blank syllable block for each spoken syllable
3. Teacher pronounces each syllable while student writes
4. Teacher provides support, as needed
5. Student writes whole word
6. Student covers up word and writes it from memory

**Examples:**

in vis i ble
Is There an Optimal Arrangement of Instructional Components?

One researcher (Calhoon) has obtained best results with this sequence:

7 weeks – Phonic Decoding (Linguistics)
7 weeks – Phonics Decoding + spelling
7 weeks – Decoding + spelling + fluency
7 weeks – Comprehension + spelling + fluency

Calhoon et al., 2010; Calhoon & Petscher, 2013

Fluency

What is “Language Comprehension”?

Before | During | After
---|---|---
Identify purpose for reading | Identify how words within sentences and paragraphs work together | Connect new learning to knowledge base
Bring background knowledge to surface | Use background knowledge to fill in gaps and make inferences |
Anticipate text structure | Use text structure to organize thinking | Summarize and express understandings
Formulate questions/queries | Seek answers to questions/queries and formulate additional ones | Answer questions/queries
Make predictions | Verify predictions and make additional ones based on reading |
Create “mental movies” | Monitor comprehension and use “fix-up” strategies | Reread as necessary; compare to other sources

Strategies Proficient Readers Use to Comprehend (Wagner & Ridgwell, 2009)

Comparison of Text Structures (Genres)

Narrative

- Tells about events meant to solve a problem or conflict
- May be fiction or nonfiction
- Fewer propositions per sentence
- May include more figurative language
- Purpose is to stimulate emotion, insight, imagination; often to entertain or transport reader to another time/place

Informational

- Explains concepts or information
- Is factual and non-fiction
- Sequence of ideas is determined by the logic of ideas in the text
- Usually more dense
- Uses content-specific vocabulary and requires background knowledge
- Purpose is to inform
Comprehension Instruction Framework

Identify critical or enduring understandings to be derived from the text and discussions.
Identify the author's purpose and lesson purpose.

Identify and teach meanings of vocabulary critical to text's meaning.

First read: Choral reading, partner reading, or read-aloud, with questions after critical junctures in text.
Second read: "Close read" — to explore cohesive ties in text, word use, important details, and assumptions.
Third read (to prepare for writing): Answer specific questions about the text using specific prompts.
Express understanding: Written or constructed response.

Word Knowledge Rating Chart

Key Passage Vocabulary

<table>
<thead>
<tr>
<th>Vocabulary Word</th>
<th>Knowledge Rating</th>
<th>Definition</th>
<th>Picture</th>
</tr>
</thead>
<tbody>
<tr>
<td>ingest</td>
<td>0 1 2 3</td>
<td>To eat, take in</td>
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<td>0 1 2 3</td>
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<td>0 1 2 3</td>
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Key: 0 = I've never heard it; 1 = I've heard it before; 2 = I can use it in a sentence; 3 = I know it.

Vocabulary: Preteach

Vocabulary: Review and Recontextualize

Review

Does the FCC require broadcast television stations to exclude inappropriate content or language? (Yes, the FCC requires them to exclude inappropriate content.) To keep out is what? (To keep out is to exclude.)

Recontextualize

To keep out or prevent from joining is what? (exclude) Jeff was happy to be excluded from the group of kids that had to clean up the park. Jeff wasn't included, he was what? (excluded)

Multiple-Meaning Maps

Can you brainstorm several meanings for this word?

- A share of ownership — I own 1/3 interest in the business
- well-being, as in the public’s best interest
- interest
- A charge added for borrowing money
- something that captures my attention
**Semantic Feature Analysis**

<table>
<thead>
<tr>
<th>natural gas</th>
<th>oil</th>
<th>wind power</th>
<th>solar coal</th>
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<tbody>
<tr>
<td>natural resource</td>
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<tr>
<td>renewable</td>
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<tr>
<td>fossil fuel</td>
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<td>carbon emissions</td>
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**Options for First Read of a Challenging Text**

- Teacher reads aloud, students have “eyes on text” and follow
- Teacher-led or student-led choral read
- Independent read of small sections with frequent comprehension checks
- Paired read or independent read

**Comprehension: “Close Reading” or Guided Highlighting**

Let’s read the last paragraph. Read the paragraph.

Today, the FCC still has the power to regulate broadcast networks on radio and television. While inappropriate material can be aired only during the “safe harbor” when children are supposed to be in bed, dinner is on, and so on. However, the definition of “inappropriate” continues to change. What is offensive today may not necessarily be offensive in another. The FCC does not receive written statements and only responds to complaints. Because they are not monitored, much of the questionable content in programs goes undetected and unpunished.

Several of the new “inappropriate” words have become commonplace during prime-time television, and even inappropriate content appears much more frequently every year. What used to be considered acceptable.

- Circle the check marks on questions marks for this paragraph. Here a question marks over words that confuse you.
- Go line 84. Mark the sentence for help. (L א)
- Go line 85. Mark the sentence for help. (L א)
- Go line 86. Mark the sentence for help. (L א)
- Go line 87. Mark the sentence for help. (L א)
- Think about it. Which of your opinions is most likely true? What does it mean to you?
- Choose a word for this section from the book. Record the words on the list on the next page. (L א)

Use pattern compare text meanings and correct any errors.

**Teach Response to Prompts**

<table>
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<tr>
<th>Easier</th>
<th>More challenging</th>
<th>Most challenging</th>
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<tbody>
<tr>
<td>state</td>
<td>define</td>
<td>compare and contrast</td>
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<td>tell</td>
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<td>formulate</td>
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<td>describe</td>
<td>conclude</td>
<td>synthesize</td>
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<td>name</td>
<td>illustrate</td>
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<td>evaluate</td>
<td>create</td>
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**Testing Vocabulary: Cloze Activity**

“Use the prompt explain in your question.”

Wordsbank: more, less, too, very, most, least, less, more, equally, not, than, as, as

Example: The FCC still has the power to regulate broadcast networks on radio and television. While inappropriate material can be aired only during the safe harbor when children are supposed to be in bed, dinner is on, and so on. However, the definition of inappropriate continues to change. What is offensive today may not necessarily be offensive in another. The FCC does not receive written statements and only responds to complaints. Because they are not monitored, much of the questionable content in programs goes undetected and unpunished.

**Testing Vocabulary:**

- use
- more
- less
- as
- too
- very
- not
- than
- least
- most
- equally
- not
- than
Sentence Combining

- Combine two simple sentences by making a compound subject. Mary played. Her brother played.
- Combine two simple sentences by combining the predicates. Jan skipped across the floor. Jan danced, too.
- Combine two simple sentences with a conjunction. Don needed a battery for his car. He left the lights on all night.
- Combine more than two sentences by embedding a clause and moving words. The train chugged over the bridge. The train was pulled by an old locomotive engine. The engine was puffing black smoke. It was a suspension bridge.

When to Use Graphic Organizers

- **Before reading:** Show students ahead of time how the text is organized. Fill in any key labels or titles. Use the graphic to help illustrate the purpose for reading.
- **During reading:** As a topic is read about in science or social studies, maintain a “living” graphic organizer such as a time sequence, to which information is continually added, or a character development map, showing how close the main character is to solving the conflict or problem in the story.
- **After reading** (perhaps a second or third read): Retell or verbally summarize, using the graphic organizer. Complete the graphic organizer as a shared pre-writing activity.

Cause and Effect

- Forest fires
- Low snowpack
- Dry vegetation
- Low rainfall
- Lightning
- Thunderstorms

Read this text. What opportunities for instruction are in this text? (Wolf Reintroduction by Dutcher and Dutcher, 1996)

When wolves were reintroduced to parts of Idaho and to Yellowstone National Park in 1995, there was debate about the potential threats to elk populations and concern about impacts to the overall health of the ecosystem. Ten years later, the positive results in Yellowstone exceeded all expectations. Wolf populations are increasing, and the benefits to the ecosystem have been dramatic.
For many decades, the absence of a significant predator allowed the elk populations to inhabit virtually any area in Yellowstone that suited them. They transitioned from feeding in the relative protection of the dense forests to congregating and browsing in river valleys where food sources were easy and plentiful. This led to ravaging young trees, small shrubs, and ground cover. After the wolves returned, elk were forced to move back into the relative protection of the trees and onto the slopes where they could watch out for wolves. No longer able to graze at will, they have had to work a bit harder to find food, with profound results.

Willows and aspen trees, instead of being eaten or trampled, now had a reasonable chance for survival and rebounded along river valleys. The recovered vegetation halted the erosion of soil into the streams. Additional shade cooled the water temperature, resulting in more stable habitat for trout. Migratory birds returned and found food and shelter in the recovered growth. The new vegetation provided building materials and food for beavers, with new dams resulting in wetlands and marshes that attracted ducks and other birds.

Use Great and Relevant Literature!

- The Outsiders (fiction)
- How to Investigate a Crime Scene (informational)
- The Autobiography of Malcolm X
- The Diary of Anne Frank (as a play)
- Dr. Jekyll and Mr. Hyde (classic fiction)
- Dissociative Identity Disorder (informational)
- White Fang (fiction)
- Introduction of Wolves into Yellowstone (informational)

Summary: Instruction Matters!

- Significant improvement can occur at any age
- Successful programs are explicit, systematic, cumulative, and integrate listening, speaking, reading, and writing
- Peer collaboration, choice, relevance, and success are motivators
- Students’ incoming levels and ability profiles must be accommodated!

References

- Calhoon, M. B., Sandow, A., & Hunter, C. V. (2010). Reorganizing the instructional reading components: Could there be a better way to design remedial reading programs to maximize middle school students with reading disabilities’ response to treatment? Annals of Dyslexia, 60, 57-86.

THE END – THANK YOU!

Louisa.Moats@gmail.com