Teaching Students with Dyslexia and Related Language Learning Disabilities

Alicia Roberts Frank, Ed.D.

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Lower level language mastery is as essential for the literacy teacher as anatomy is for the physician.

Louisa Cook Moats
Outline

- The Importance of Decoding
- Linguistic Awareness
- Phonology & Phonemic Awareness
- Orthography & Encoding
- Morphology
- Teaching Encoding & Decoding Skills
- Accommodations
- References & Resources
The “Big Picture” of Reading

READING

Decoding

Word Identification

Comprehension

Meaning

Language System

Reading

Decoding

Phonology

Discourse

Syntax

Semantics

Shaywitz, 2003
The Importance of Decoding Skills

Shaywitz, 2003
Progression of Learning to Read

Phoneme Awareness
Letter Recognition
Concepts of Print

→ Alphabetic Code

(Plus Morphological Awareness)

→ Fast, automatic word recognition

→ Reading Fluency
Figure 4. Researcher-designed model of the process of comprehending text.
Teaching Reading Involves:

- Auditory
- Visual
- Kinesthetic

Sensory modalities involved in language

Hierarchy of Language Acquisition

Experience

Listening

Speaking

Reading

Writing
Important Prerequisites for Acquiring Reading Successfully

- The understanding that:
  - speech can be segmented, manipulated and blended (Phoneme awareness)
  - segmented units of speech can be represented in print (Phonics)
  - written spellings systematically represent the phonemes of spoken words (Alphabetic principle)

- Children are not born with these insights.
- Some children discover the alphabetic principle prior to instruction (others must be explicitly taught).
Stages of Reading Development

- Pre-reading/oral language development
  - Some knowledge of print/able to write name/pretend reading

- Decoding/initial reading
  - Grades 1 & 2 – alphabetic principle/sound-symbol relationships

- Confirmation and fluency
  - Grades 2 & 3 – additional strategies/fluency/further decoding

- Reading to learn/learning the new
  - Grades 4-8 – information/vocabulary/genres/experiences

- Multiple viewpoints
  - Grades 9-12 – increasing language/cognitive demands

- Construction and reconstruction
  - College & beyond – information for individual purposes
Linguistic Awareness

- Phonology & Phonemic Awareness
  - Sounds in a language
  - Ability to recognize and manipulate phonemes

- Orthography & Orthographic Awareness
  - Representation of phonemes by graphemes
  - Ability to connect sounds to symbols

- Morphology & Morphological Awareness
  - Meaningful units of words of a language
  - Ability to connect morphemes to their meaning

- Syntax & Syntactical Awareness
  - Ability to combine words in grammatical ways
<table>
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<th>Age typically mastered by</th>
<th>Skill</th>
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<tr>
<td>3</td>
<td>Rhyming by pattern alliteration</td>
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<tr>
<td>4</td>
<td>Syllable counting (50% of 4-year olds)</td>
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<tr>
<td>5</td>
<td>Syllable counting (90% of 5-year olds)</td>
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<tr>
<td></td>
<td>Phoneme counting (&gt;50% of 5-year olds)</td>
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<td>6</td>
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<td>Blending 2-3 phonemes, phoneme counting</td>
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<td>Onset-rime division</td>
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<td>Blending 3 phonemes, phoneme deletion</td>
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<td>segmentation of 3-4 phonemes</td>
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<td>phonetic spelling</td>
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<td>8</td>
<td>Consonant cluster segmentation</td>
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<td></td>
<td>Deletion within clusters</td>
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</table>
Continuum of Activities That Lead to Phonemic Awareness

- Rhyming songs
- Sentence segmentation
- Syllable segmentation and blending
- Onset-rime, blending & segmentation
- Phonemic Awareness
  - Blending & segmenting individual phonemes
Orthography & Encoding (Phonics & Beyond)

- **Encoding**
  - Green-flag words (phonetically regular)
  - Yellow-flag words (more than one spelling for sounds)
  - Red-flag words (sight words)

- "Rules" or Orthographic Patterns
  - FLOSS rule:
    1 syllable b.w (cv f, l, s, z) double the f, l, s, or z gruff, spell, dress, fuzz (ex. pal, if, bus, yes)
  - Rules for adding suffixes
## American English Consonants

<table>
<thead>
<tr>
<th></th>
<th>lips</th>
<th>lips/teeth</th>
<th>tongue between teeth</th>
<th>tongue behind teeth</th>
<th>roof of mouth</th>
<th>back of mouth</th>
<th>throat</th>
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<td>/t/</td>
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<td></td>
<td>/k/</td>
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<td>/b/</td>
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<td>/d/</td>
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<td>/g/</td>
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<td>/n/</td>
<td></td>
<td></td>
<td>/ng/</td>
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<tr>
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<td>/z/</td>
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<td>/zh/</td>
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<td></td>
<td>/y/</td>
<td>/wh/, /w/</td>
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<tr>
<td>liquid</td>
<td></td>
<td></td>
<td></td>
<td>/l/, /r/</td>
<td></td>
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</tr>
</tbody>
</table>
Consonant Spellings

- Many (12/21) consistent representations of sounds
- Digraphs & trigraphs
- Relatively consistent other patterns
  - Soft c – cent, cinder, cycle
  - Soft g – gem, ginger, gyrate
  - s/se – has, his, rose, nose
- “Silent” letters
  - Most part of digraphs & trigraphs
  - Many others recognizable by word origin
Vowel Spellings by Mouth Position

- e
  - see
  - these
  - me
  - eat
  - key
  - happy
  - chief
  - either

- i
  - sit
  - been
  - gym

- a
  - make
  - rain
  - play
  - they
  - baby
  - eight
  - vein
  - great

- e
  - pet
  - head
  - said
  - says

- a
  - cat
  - laugh

- õ
  - about
  - lesson
  - select
  - definition
  - circus

- aw
  - vote
  - doe
  - boat
  - snow
  - open
  - old

- oo
  - took
  - put
  - could

- õ
  - moo
  - tube
  - blue
  - chew
  - ruby

- oi oy
  - boy
  - oil
  - (lawyer?)

- ou ow
  - cow
  - out

- ur
  - ir:
  - sir
  - her
  - fur

- âr:
  - ar
  - car

- ôr:
  - or
  - pour
  - or

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<table>
<thead>
<tr>
<th>Type</th>
<th>Pattern</th>
<th>Examples</th>
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</thead>
<tbody>
<tr>
<td>Closed</td>
<td>vc</td>
<td>cat</td>
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<tr>
<td>Open</td>
<td>cv</td>
<td>he</td>
</tr>
<tr>
<td>Silent e</td>
<td>vce</td>
<td>safe</td>
</tr>
<tr>
<td>R controlled</td>
<td>vr</td>
<td>star</td>
</tr>
<tr>
<td>Vowel team</td>
<td>vv</td>
<td>soon</td>
</tr>
<tr>
<td>Final stable syllable</td>
<td>[cle]</td>
<td>muz[zle]</td>
</tr>
</tbody>
</table>
Syllable division rules

- Most Common: Between 2 consonants
  - vc/cv      ban/dit

- Open Syllable: After the vowel
  - v/cv      o/pen

- Closed Syllable: After the consonant
  - vc/v      cab/in

- Least Common: Between the vowels
  - v/v       po/em
Spelling rules for adding affixes

**Doubling Rule**

b.w. vc´ + v suffix  
run + er = runner

**Dropping Rule**

b.w. e + v suffix  
save + ing = saving

**Y-Rule**

b.w. cy + non-i suffix  
carry + ing = carrying

happy + ness = happiness

b.w. vy + any suffix  
joy + ful = joyful
Adapted from van Lier, 1995
Morphology

Morphemes

- Free
  - Content
  - Function
- Bound
  - Prefixes
  - Bound Roots
  - Suffixes

Inflectional    Derivational
Free Morphemes

- Content
  - Have meaning
  - Nouns, verbs, adjectives, adverbs
  - Examples?

- Function
  - Grammatical glue of sentences
  - Conjunctions, prepositions, articles
  - Examples?

May be combined to form compound words (usually of Anglo-Saxon or Greek origin)
Bound Morphemes

- Prefixes
- Suffixes
  - Inflectional
    - Show number, possession, gender, tense, voice, mood, & comparison
    - Common: s/es, ed, ing, en, er, est
  - Derivational
    - Change the grammatical class of the word
    - Common: ly, er/or, ion, al, ible/able, y, ness, ment
- Roots
  - Most likely Latin
  - Careful of chameleons!
The Importance of Morphology

- In University of Washington treatment and brain imaging studies for children with dyslexia (in grades 4 to 9) in family genetics study, adding morphological awareness of words of Romance origin (French and Latin) to phonological and orthographic awareness was necessary to normalize brain function and obtain behavioral gains. (Richards et al., 2006)

- Morphological awareness has an independent relationship with reading comprehension. (Carlisle & Stone, 2000; Nagy et al., 2003)
<table>
<thead>
<tr>
<th>Word</th>
<th>Phonemes</th>
<th>Morphemes</th>
<th>Syntax</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>often</td>
<td>4 or 5</td>
<td>1, 2 syllables</td>
<td>adverb</td>
<td>regularly</td>
</tr>
<tr>
<td>gives</td>
<td></td>
<td></td>
<td>verb</td>
<td></td>
</tr>
<tr>
<td>alligator</td>
<td></td>
<td>1, 4 syllables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>drum</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>peckish</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>liposuction</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Word</td>
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<td>adverb</td>
<td>regularly</td>
</tr>
<tr>
<td>gives</td>
<td>4</td>
<td>2, 1 syllable</td>
<td>verb</td>
<td>transfers</td>
</tr>
<tr>
<td>alligator</td>
<td>7 or 8</td>
<td>1, 4 syllables</td>
<td>noun</td>
<td>amphibious reptile</td>
</tr>
<tr>
<td>drum</td>
<td>4</td>
<td>1, 1 syllable</td>
<td>N or V</td>
<td>musical instrument or to pound</td>
</tr>
<tr>
<td>peckish</td>
<td>5</td>
<td>2, 2 syllables</td>
<td>adjective</td>
<td>slightly hungry</td>
</tr>
<tr>
<td>liposuction</td>
<td>10</td>
<td>3, 4 syllables</td>
<td>noun</td>
<td>extraction of fat from body tissue</td>
</tr>
</tbody>
</table>
Teaching Encoding & Decoding Skills

- Teach letter & sound, blending, common letter combinations (vng/vnk, ture, age) multisyllabic strategies, affixes
- Read and practice
  - first in isolation (flash-cards, auditory written)
  - then in words (reading and spelling)
  - then in connected text (reading and writing)
- Begin with most common, high-frequency items
- Teach one item at a time with intensive practice, then continue cumulative and distributed practice daily
Decoding Procedures

- Identify (box) prefixes & suffixes
- Underline vowels and letter combinations
- Divide between syllables
- Read
  - Vowel sounds first
  - Syllable by syllable to form base word
  - Base word, then add suffixes, then prefixes
- Optional steps
  - Underline digraphs & trigraphs
  - Cross out silent letters
  - Pattern lines for initial learning
Encoding Procedures

Oral only, Oral to paper, or Paper only

- Vocalize the word, with arm swing
- Identify number of syllables in base word
- Identify first syllable
  - Determine vowel sound & spelling
  - Repeat syllable
  - Identify each sound/spelling in order
- Continue with following syllable(s)
- Add affixes, applying rules as appropriate
Decoding Practice

Decode the following words:

- merchandise
- strengthen
- bamboozle
- commercial
- pugnacious
- abstraction
- marshmallow
- dentistry
- nincompoop
- spectroheliograph
- immune
- smudge
- scrumptious
- judicial
# Tying it all together

## Learning and Practicing Letter Formation
- Individual Letters & Cursive connections

<table>
<thead>
<tr>
<th>Auditory</th>
<th>Visual</th>
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<tbody>
<tr>
<td>A. Cards</td>
<td>A. Cards</td>
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<tr>
<td>• Oral</td>
<td>B. Decoding</td>
</tr>
<tr>
<td>• Written</td>
<td></td>
</tr>
<tr>
<td>B. Encoding</td>
<td>C. Preparation for Reading</td>
</tr>
<tr>
<td>C. Spelling</td>
<td>D. Reading from a Book</td>
</tr>
<tr>
<td>D. Dictation</td>
<td></td>
</tr>
</tbody>
</table>

Adapted from Slingerland Lesson Plan
Accommodations

- Audio books
  - Learning Ally (formerly reading for the blind and dyslexic)
- Speech to print software
  - Dragon Speak
  - Write Out Loud
  - Kurtzweil
- Organizing support
  - Inspiration
- Extended time
The argument for extra time

Adapted from Shaywitz, 2003
Resources

- International Dyslexia Association
  - http://www.interdys.org/
- Decoding Dyslexia Oregon
  - http://www.decodingdyslexiaor.org/
- Reading Rockets
  - http://www.readingrockets.org/
- What Works Clearinghouse (on Literacy)


More works cited


To learn to read is to light a fire; every syllable that is spelled out is a spark.

Victor Hugo