The RTI (Response to Intervention) series
Everything you need to know about

Word Recognition and Reading Fluency: Understanding the Stages of Development

This program will help you understand word recognition and how to intervene at each stage of development

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The Goal: Fluent Word Recognition

To achieve rapid, fluent word recognition, each child must construct a mental network of interconnections between:

- features
- phonemes/sounds
- graphemes/letters
- orthographic patterns
- irregular words
- sight words
- rimes/word family

- meaning
- affixes/morphology
- vocabulary
- phrases
- grammar
- cohesion
- discourse structures
- prior knowledge

Word Recognition Network

1. A word is viewed during an eye fixation
2. Spaces are as important as letters, so in the first layer of “hidden units” chunks such as “space letter” “letter letter” “letter space” are processed _d do og g_

1. At higher levels, patterns that occur with high frequency form units (re- oi ea ph ing)
2. At even higher levels, larger units are found (ind ight ence ord tion oint ube oung)
3. The units are organized into syllable patterns
4. The syllable patterns are organized into words

Traveling Activation

- When a word is seen during a fixation, the input sends activation traveling through the network toward potential words (candidates).
- The more internal connections that are present in the network, the more easily the input travels to the correct “solution” and the word is accurately read.
- The fewer or weaker the internal connections, the more likely that the input will travel down the wrong path, resulting in a “miscue” or error.

Traveling Activation Word Recognition

Word candidates:
- works
- worms
- worse
- warms

Ehri’s Phases of Word Recognition

- Ehri (1995, 2005) proposed developmental phases of word recognition
- Represent flexible overlapping phases, rather than clearly defined stages
- Alphabet processing is fundamental to all phases
- There is continuity between the phases
- The resulting model of word recognition has undergone refinement but has basically remained the same in the past two decades since Ehri first proposed these phases.
I. Pre-Alphabetic Phase

• Occurs prior to knowledge of the alphabet
• Does not rely on an understanding of the sound-symbol relationship of the alphabet
• Instead, associations are made between the most salient visual features of words and their meaning
• For example, young children “read” logos from familiar brand names or labels (Mason, 1980).
• These words are not recognized from their letters, but rather from the context in which the letters are embedded.
• Because the letters lack an alphabetic connection, there may be no relationship between the letters and the word read (i.e., read “juicy fruit” as “gum.”)

“This says ‘gum’”
Pre-Alphabetic continued

- If the letters of the word were rearranged, a child in the pre-alphabetic phase would not recognize any difference (Masonheimer, Drum, & Ehri, 1984)
- Children who do know the alphabet are more likely to notice the change in letters: gum umg mug
- Importance of Pre-alphabetic Phase: Attending to meaning cues such as logos and brand names enables children to first become aware of words Mason (1980)
- However, these words cannot be recognized without the distinct print size, picture, or other context cues
- Ehri argues this phase does not represent true word recognition
Pre-Alphabetic Network: Simple connections between pictures and words

Word candidates: caterpillars

Instead, the child “reads” word based on picture cues

**Intervention for Pre-Alphabetic Phase**

MorphoPhonic Faces (Elementory.com) provide the picture cues used by pre-alphabetic readers but also teach the alphabetic principle.

The letter drawn in the Phonic Face (Elementory.com) provides production cues: in this case, move the lips up and down in a wave-like motion to produce the /w/ sound.

The remaining letters are drawn as into the picture to overlap the letters and the meaning.

Orthographic patterns such as “or” are grouped in the picture so they can be processed as a unit.

*MorphoPhonic Faces* teach sight words in a manner consistent with the learning stage of pre-alphabetic readers while simultaneously laying the foundational skills for higher level alphabetic phases.
Intervention for Pre-Alphabetic Phase

Use Phonic Faces (elementory.com) to teach the alphabetic principle

The shape of the letter is drawn in the mouth to represent what sound the letter makes your mouth produce. The circular shape of letter “A” looks like the open mouth of a crying baby (ahhh!); the curve of letter “p” looks like the top lip popping the /p/ sound; the top of letter “m” looks like the cupid’s bow of the top lip, which says /mmmm/ as the boy eats candy; the straight line of the “t” looks like the tongue tapping behind the teeth (represented by the horizontal line). Kids just have to copy the faces to make the correct letter-sound association (no prior phonemic awareness required).
Another variation of reading using visually salient cues

The word is recognized because something in the shape of the letters reminds them of the word’s meaning. The word “look” suggests its meaning because it is easy to imagine the two “o”s as eyes.

Other words recognized by 4-year-olds include “monkey” and “dog” because the “y” and “g” look like tails, or “camel” because the “m” looks like humps (Gates & Bocker, 1923; Gough, Juel, & Griffith, 1992).
Attend to Idiosyncratic Visual Cue
(“w” looks like the worms)
No alphabetic principles

Word candidates:

Child may say the correct word but is attending to irrelevant cues (the w in “worm” looks like a worm) but that cue will not lead to higher alphabetic reading stages

• Researchers created this type of word and found preschool-age children and older low-readers were able to name sight words taught using this method better than a printed word alone condition (Blischak & McDaniel, 1995; Miller & Miller, 1968, 1971)

• It was proposed that the pictures called attention to orthography that is used in discriminating and later recognizing letter sequences

• However, these words did not lead to alphabet skills or better decoding later in development
Visually salient cued words are effective for teaching sight words ...

MorphoPhonic Faces provide the salient visual cues but also teach the alphabet principle and chunk patterns such as “ck” and indicate syllable breaks (lit tle)

but they do not lead to higher level alphabetic reading phases
II. Partial Alphabetic Phase

- Child is beginning to form connections between written words and pronunciations based on the alphabet
- Matches between graphemes (letters) and phonemes (sounds)
- However, connections are only made for some letters and sounds, often first and last letters of a word (easiest to detect) (Ehri, 1995)
- Results in confusion with similarly spelled words, so that a child might recognize “spoon” as “skin” (Savage, Stuart, & Hill, 2001)
- According to Ehri, children are limited to partial connections at this stage because of incomplete phonemic awareness (ability to segment the word into all of its respective phonemes or sounds)
- Also lack full knowledge of the alphabetic system, especially the complex vowel system and digraphs such as “ch” or “sh.”
- Thus, children use letters they can detect to recall a word, or “phonetic cue reading.”
- These characteristics are seen for both word recognition and for invented spelling

Child may read “works” “worms” “words” “warms” as “worms”
Partial Alphabetic

Begin to build connections
Ignore word middles, so miscues

Word candidates: works worms words warms

Intervention for Partial-Alphabetic Phase

Use Phonic Faces Train (elementory.com) to increase awareness of sounds in beginning-middle-ends of words. Relate the faces to what your mouth does.

“Watch my mouth. Which sound am I making when I say “dog?” Does my mouth make an /i/ sound or an /o/ sound? Which letter makes the /o/ sound?”

Show rhyme by changing the first letter-sound

Show sound manipulation by changing letter-sounds in different word positions

Each digraph has its own face representing its unique sound
III. Full Alphabetic Phase

• complete connections between letters in spellings and phonemes in pronunciations are formed
• Once words can be segmented, children assign letters to the sounds they hear in the order in which they are pronounced
• While there may not be a one-to-one match between letters and sounds, sufficient connections can be made to result in rapid word recognition, especially for regularly spelled words
• These grapheme-phoneme connections bond letters in written words to their pronunciations, along with their meanings, in memory
• Children now have a powerful system for rapidly learning any word as a sight word and retrieving them from memory
• Since sight words are represented completely in memory, reading words becomes much more accurate
• Confusions between similarly spelled words are minimized
• The same structure provides a means for new words to be decoded and read by blending the pronunciations.
Full Alphabetic
letter-sounds, simple morphemes, common orthographic patterns

Word candidates: | works | worms | words | warms |

Intervention for Full-Alphabetic Phase

Different faces for short and long vowels
SHOW children the relationship between the unique sounds

Strategies for showing different syllable patterns

Easily show phonic rules such as double vowels.
“When 2 babies try to go walking, the grown up does the talking.”

Unique faces for vowel and consonant digraphs and diphthongs
IV. Consolidated Alphabetic Phase

- Learning a greater number of sight words results in increasingly more words in memory.
- The same spelling patterns begin to recur within the same and different words as the number of known words increases.
- As this occurs, the grapheme-phoneme connections within these words become consolidated into larger units.
- These units include rimes (d-og), syllables (-ble), morphemes (-ing), and whole words.
- Thus, the child begins to actually read sight words as a unit.
- For example, the word, “sweet” might be processed as two units, “sw” and “eet.” [Full Alphabetic Phase = four units (s, w, ee, t)]
- Recognizing units also enables multisyllabic words to be read more easily.
- Connections can be made in units or chunks for syllables, morphemes, rimes, and/or root words, so fewer connections are required to enter the words in memory.
Consolidated Alphabet

root words, morphemes, phonic rules, etc

Word candidates:

- works
- worms
- words
- warms

MorphoPhonic Suffixes (elementory.com) show how adding inflectional morphemes (plural, verb tense, possessives etc.) can change the tense, number or state of a word. Derivational morphemes show how a suffix can change the grammatical class of a word (change verbs to nouns or adjectives; change adjectives to adverbs etc.)
Phonic Faces and MorphoPhonic Morphemes are available at www.elementOry.com

Phonic Faces Set Up Internal Units

R-vowels (er, ir, ur, or, ar) have their own faces

Plurals and other morphemes are depicted on MorphoPhonic Morphemes which picture their meaning

The mouth of each Phonic Faces consonant and vowel is the letter shown making the relevant sound

Do Phonic Faces Work?

- 20 month olds learn letters and corresponding sounds (Terrell, 2007)
- 20-24 month olds learn sight words and the alphabetic principle, generalizing to new words (Doyle, 2008)
- Head Start children increase phonemic awareness, rhyme, and vocabulary (Brazier-Carter, 2008)
- MorphoPhonic Faces “bootstrap” sight word learning (Powell, 2007)
- Nonverbal children begin to talk within a few sessions (Banajee, 2007; Bourque, 2008); and gain reading skills (Banajee, 2007).
- First grade classrooms make greater gains than control classrooms (Norris & Hoffman, 2008)
- Middle school students with severe reading delays improve decoding skills (Brinkley, 2010)


