Teaching all students to read: Working together as a school level system

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When we say that our goal is to teach all students to read, what do we really mean?

We want students to be able to read grade level text with a reasonable level of understanding.

We usually also mean we want them to be able to do this fluently, so that reading the text doesn’t take an inordinate amount of time.

And we would like them to find pleasure in reading, which also means we would like them to be able to read a book like we read books, without having to struggle with the words, and be able to focus on the meaning.
What skills, knowledge, and attitudes are required for good reading comprehension?
What we know about the factors that affect reading comprehension

Proficient comprehension of text is influenced by:

Accurate and fluent word reading skills

Oral language skills (vocabulary, linguistic comprehension)

Extent of conceptual and factual knowledge

Knowledge and skill in use of cognitive strategies to improve comprehension or repair it when it breaks down.

Reasoning and inferential skills

Motivation to understand and interest in task and materials
Reading is a multifaceted skill, gradually acquired over years of instruction and practice.
Text structure, vocabulary, print style and font, discourse, genre, motivating features

Word recognition, vocabulary, background knowledge, strategy use, inference-making abilities, motivation

Environment, purpose, social relations, cultural norms, motivating features (e.g. school/classroom climate, families, peers)
Where do our most significant challenges lie?

A central problem in reading instruction arises, not from the absolute level of children’s preparation for learning to read, but from the diversity in their levels of preparation.

(Olson, 1998)
What are the most important ways children are diverse—when it comes to learning to read?

1. They are diverse in their talent and their preparation for learning to read words accurately and fluently.

2. They are diverse in their oral language knowledge and abilities—vocabulary and world knowledge.

3. They are diverse in their abilities to manage their learning behaviors and their motivation to apply themselves to learning to read.
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Problems in this area begin with difficulties mastering the use of “phonics” skills as an aid to early, independent reading.

- difficulties with the skills of blending and analyzing the sounds in words (phonemic awareness).
- difficulties learning letter-sound correspondences

Slow development of “sight vocabulary” arising from:

- limited exposure to text
- lack of strategies to reliably identify words in text
The nature of the underlying difficulty for most children who struggle in learning to read words accurately and fluently

Weaknesses in the phonological area of language competence

- inherent, or intrinsic, disability
- lack of opportunities to learn in the pre-school environment

Expressed primarily by delays in the development of phonemic awareness and phonics skills
A three part definition of phonemic awareness

1. Understanding that words are composed of segments of sound smaller than a syllable. Also involves the ability to identify the individual sounds in words.
Phonological Awareness ≠ Phonics
A three part definition of phonemic awareness

1. Understanding that words are composed of segments of sound smaller than a syllable. Words are made up of small reusable chunks of sound.

   “point to the pictures showing words that begin with /f/
   “what is the first sound in the word mat?
   “tell me the sounds in the word fast?

2. Awareness of the way phonemes are co-articulated when they are blended
Blending \textit{c-l-a-m}
A three part definition of phonemic awareness

1. Understanding that words are composed of segments of sound smaller than a syllable. Words are made up of small reusable chunks of sound.

2. Awareness of the way phonemes are coarticulated when they are blended.

3. Increasing awareness of the critical distinctive features of phonemes so that their identity, order, and number can be specified in words of increasing complexity.
lap
clap
pulverize
Important fact about talent in the phonological language domain:

It is like most other talents in that it is distributed normally in the population.
“Phonological talent” is normally distributed in the population.

Children can be strong in this talent-like my grandson Andrew.
“Phonological ability” is normally distributed in the population.

Children can be moderately weak in this talent-like David.
Each of these kinds of weakness is normally distributed in the population.

Percentile Ranks

- 2nd percentile
- 16th percentile
- 50th percentile
- 84th percentile
- 98th percentile

Standard Scores

- 70
- 85
- 100
- 115
- 130

Serious difficulties—probably require special interventions and a lot of extra support—like Alexis.
Alexis...
Another important fact about talent in the phonological language domain:

It is only weakly correlated with broad verbal ability or general intelligence.
Phonological Language Ability is not highly Correlated with General Verbal Ability as measured by IQ tests.
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One more important fact about talent in the phonological language domain:

Children’s ability in this area when they come to school is influenced both by biologically based talent, and by opportunities to learn from their pre-school environment.
Children come to school very different from one another in the experience they have had that prepares them for learning to read.
Development of Phonological Sensitivity

Cross-sectional study comparing the performance of 250 children from higher income families to 170 children from lower income families.

Children were between two- and five-years of age.
SES Differences in Phonological Sensitivity

Children completed tests of phonological sensitivity and awareness that assessed their ability to identify and blend words, syllables, onset-rimes, or phonemes.
To summarize:

Children can come to school weak in phonological ability either because of their biology or their language experience.

Regardless of whether they also have broader weaknesses in verbal ability, both types of children need similar intensive early reading support in order to prevent reading failure.
One area in which they need special support is “phonics”

**Phonics—a two part definition**

**It is a kind of knowledge**

Which letters are used to represent which phonemes

**It is a kind of skill**

Pronounce this word...

blit fratchet
Words that are part of, or related to, the “phonics” family

**Alphabetic Principal** - when we say children have acquired the “alphabetic principal” we mean they have acquired understanding and skill in phonics.

**Phonemic decoding** - the process of identifying unfamiliar words in text by using letter-sound relationships and blending.

**Decoding** - this word is often used to refer to the entire process of identifying words in text. Preferred use is to describe the complete process of identifying unfamiliar words.
Why is it important for children to acquire good phonemic decoding skills (phonics) early in reading development?

Because learning to read involves everyday encounters with words the child has never before seen in print.

Phonemic analysis provides the most important single clue to the identity of unknown words in print.
The most efficient way to make an “accurate first attempt” at the identity of a new word is:

First, do phonemic analysis and try an approximate pronunciation.

Then, close in on the exact right word by finding one containing the right sounds, that also makes sense in the sentence.

(chapter 10, Preventing Reading Difficulties in Young Children (2000))
The boy ________ the dog in the woods.

The boy ch __d the dog in the woods.
The connection to reading fluency:

To be a fluent reader, a child must be able to recognize most of the words in a passage “by sight”
These are intrsisting and challenging times for anyone whose professional responsibilities are related in any way to literacy outcomes among school children. For, in spite of all our new knowledge about reading and reading instruction, there is a wide-spread concern that public education is not as effective as it should be in teaching all children to read.
The report of the National Research Council pointed out that these concerns about literacy derive not from declining levels of literacy in our schools but rather from recognition that the demands for high levels of literacy are rapidly accelerating in our society.
The connection to reading fluency:

To be a fluent reader, a child must be able to recognize most of the words in a passage “by sight”.

Children must correctly identify words 3-8 times before they become “sight words”.

Children must make accurate first attempts when they encounter new words, or the growth of their “sight word vocabulary” will be delayed—they will not become fluent readers.
Words likely to be encountered for the first time in first grade:

- animal
- faster
- happy
- never
- time
- sleep
- rabbit
<table>
<thead>
<tr>
<th>Words likely to be encountered for the first time in second grade</th>
<th>amaze</th>
<th>beach</th>
<th>comfortable</th>
<th>example</th>
<th>interesting</th>
<th>grease</th>
<th>stiff</th>
<th>sweep</th>
</tr>
</thead>
</table>

the middle ______, it was the
_______ for a ________ to wear his full
set of ______ whenever he
__________ in ________ - even in times
of_______!  When a _________ believed
he was ______ friends, he would
_______ his ________.  This ______
of ____________ showed that the
_______ felt ________ and safe.
Passage from 3\textsuperscript{rd} grade reading comprehension test

During the middle ages, it was the custom for a knight to wear his full set of armor whenever he appeared in public - even in times of peace! When a knight believed he was among friends, he would remove his helmet. This symbol of friendship showed that the knight felt welcome and safe.
Becoming a fluent reader—from the bottom up

1. Students who acquire proficient phonemic decoding skills in first grade become accurate and independent readers by the middle or end of first grade.

2. Students who read accurately, and read a lot, acquire larger and larger vocabularies of words they can read “by sight.”

3. Fluent readers in third grade are those who can read almost all of the words in third grade text “by sight.”
One of the most important discoveries.....

“One of the great mysteries to challenge researchers is how people learn to read and comprehend text rapidly and with ease. A large part of the explanation lies in how they learn to read individual words. Skilled readers are able to look at thousands of words and immediately recognize their meanings without any effort.”

The Surprise Party

My dad had his fortieth birthday last month, so my mom planned a big surprise party for him. She said I could assist with the party but that I had to keep the party a secret. She said I couldn’t tell my dad because that would spoil the surprise.

I helped mom organize the guest list and write the invitations. I was responsible for making sure everyone was included. I also addressed all the envelopes and put stamps and return addresses on them.....
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Three potential stumbling blocks to becoming a good reader (NRC Report, 1998)

1. Difficulty learning to read words accurately and fluently

2. Insufficient vocabulary, general knowledge, and reasoning skills to support comprehension of written language

3. Absence or loss of initial motivation to read, or failure to develop a mature appreciation of the rewards of reading.
“Of the many compelling reasons for providing students with instruction to build vocabulary, none is more important than the contribution of vocabulary knowledge to reading comprehension. Indeed, one of the most enduring findings in reading research is the extent to which students’ vocabulary knowledge relates to their reading comprehension.”

Percent of Students at Grade Level and Percent with Serious Difficulties in Oral Vocabulary across all cohorts
Sources of instruction and development for vocabulary knowledge

Incidental learning from oral language at home and school.

Students from low SES environments (poor children) enter school with vocabularies about half the size of their middle class counterparts.

The sophistication of language children hear and participate in is a stronger predictor of their later vocabulary knowledge than is the number of words that they hear and speak (Weizman & Snow, 2001).
Sources of instruction and development for vocabulary knowledge

Observations of the language used by early primary and elementary school teachers indicates that it is often limited to commonly used words—occurrence of unusual words is not common.

One recommendation—add more interesting words in daily use.

“the door is ajar, would you close it?

“the plant is dehydrated, would you water it?

“do you want to participate in that group?
Why Oral language experience is not enough

Frequency of Word Use in Major Sources of Oral and Written Language (Hayes & Ahrens, 1988)

<table>
<thead>
<tr>
<th>Rare Words per 1,000</th>
<th>Printed texts</th>
<th>Television texts</th>
<th>Adult speech</th>
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<tbody>
<tr>
<td>I. Printed texts</td>
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<tr>
<td>Newspapers</td>
<td>68.3</td>
<td>Adult shows</td>
<td>22.7</td>
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<tr>
<td>Popular magazines</td>
<td>65.7</td>
<td>Children’s shows</td>
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<tr>
<td>Adult books</td>
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<td>Preschool books</td>
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<tr>
<td>College graduates</td>
<td>17.3</td>
<td></td>
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<tr>
<td>talk with friends/</td>
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<tr>
<td>spouses</td>
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Sources of instruction and development for vocabulary knowledge

Teacher Read Alouds

A widely used method to introduce students to words that they would not encounter in everyday oral language.

However, the advantage of read alouds is likely to lie in the teacher/student talk about the unusual, or uncommon words in the text.
An example of instructive “talk about text”

(In the story, a fly tells Arthur he can have three wishes if he didn’t kill him. Arthur says that it’s absurd to think a fly can grant wishes.)

Teacher (after giving child friendly definition):
If I told you that I was going to stand on my head to teach you, that would be absurd. If someone told you that dogs could fly, that would be absurd.

I’ll say some things, and if you think they are absurd, say: “That’s absurd!” If you think they are not absurd, say: “That makes sense.”

I have a singing cow for a pet. (absurd)

I saw a tall building that was made of green cheese. (absurd)
Last night I watched a movie on TV. *(makes sense)*
This morning I saw some birds flying around the sky. *(makes sense)*

Teacher:
Who can think of an absurd idea? (When a child answers, ask other children if they think the idea is absurd, and if so, to tell the first child: “That’s absurd!”)
Four Critical Elements for More Robust Vocabulary Instruction

Select the right words to teach – Tier 2 words
- absurd
- fortunate
- ridiculous

Develop child-friendly definitions for these words

Engage children in interesting, challenging, playful activities in which they learn to access the meanings of words in multiple contexts

Find a way to devote more time during the day to vocabulary instruction
Evidence for instruction in comprehension strategies comes from three sources:

1. Proficient readers monitor their comprehension more actively and effectively than less proficient readers.

2. Proficient readers are more likely to use a variety of active cognitive strategies to enhance their comprehension and repair it when it breaks down.

3. Explicit instruction along with supported, scaffolded practice in the use of comprehension strategies produces improvements in reading comprehension in both younger and older students.
What are reading comprehension strategies?

“Comprehension strategies are procedures that guide students as they attempt to read and write”

(Report of the National Reading Panel, 2000)

• Generating questions or thinking aloud
• Connecting background knowledge & predicting
• Constructing visual representations
• Summarizing
• Rereading
Comprehension instruction is most effective when:

Teachers **demonstrate explicit steps and strategies** to students explaining what the strategy is and what its purpose is.

Teachers **model multiple examples** of how to apply the strategy using a “thinking aloud” procedure while interacting with actual text.

Teachers provide students with **extensive opportunities to practice** strategies and offer high-quality feedback.

Teachers **structure ample review and opportunities for learning** how and when to use strategies, within the context of reading actual text.—**lots of discussion**
The role of motivation, or engagement, in learning to be a better comprehender

**The Premise:**
Since comprehension is an active, effortful process, students are likely to apply strategies that require conscious effort if they are motivated to construct the meaning.

**From John Guthrie:**
"Motivated students usually want to understand text content fully and therefore, process information deeply. As they read frequently with these cognitive purposes, motivated students gain in reading comprehension proficiency."
The most common model for classroom and school activities to prevent reading problems

1. Increase the quality, consistency, and reach of instruction in every K-3 classroom

2. Conduct timely and valid assessments of reading growth to identify struggling readers. Use this data to improve school level and instructional planning

3. Provide more intensive interventions to help struggling readers “catch up” to grade level standards in each grade K-3.
What can speech/language pathologists contribute to this system?

1. Help to deepen the skills of K and 1st grade teachers in supporting the growth of phonemic awareness

A weakness of some SLP’s: don’t pay enough attention to the transition between PA and phonics

Making Sense of Phonics: The Hows and Whys
Isabel Beck: Guilford (2006)
What can speech/language pathologists contribute to this system?

2. Help to deepen the skills of K-3 teachers in teaching vocabulary
What can speech/language pathologists contribute to this system?

3. Provide “push in” small group instruction to high risk students in phonemic awareness, phonics, vocabulary

- Classroom teacher and group of 5
- SLP teacher and group of 4
- Independent Learning Activity (3)
- Independent Learning Activity (4)
- Independent Learning Activity (5)
Can we alter children’s lives if we provide very strong early instruction?
Recent Functional Neuroimaging findings on Adults
Magnetic Source Imaging

- Detects small biomagnetic brain signals
- Provides real-time information about which brain areas are active and when during task performance
Students were identified as at risk for reading difficulties in kindergarten.

Received one year of intervention in first grade.
Kindergarten

S#1
At Risk
Weak activation

S#31
Not At Risk

Left Hemisphere Right Hemisphere

Left Hemisphere Right Hemisphere
Kindergarten

S#1
At Risk

S#31
Not At Risk

Strong activation

Not at Risk

150-300 300-1000 ms
Time after Stimulus Onset

Left Hemisphere  Right Hemisphere
Kindergarten

S#1
At Risk

Weak activation

S#31
Not At Risk

Strong activation

Left Hemisphere  Right Hemisphere

150-300  300-1000 ms
Time after Stimulus Onset
At Risk Reader

Kindergarten
- Before Intervention

First Grade
- After Intervention

Left Hemisphere

Right Hemisphere
A final concluding thought....

There is no question but that “leaving no child behind in reading” is going to be a significant challenge....

It will involve professional development for teachers, school reorganization, careful assessments, and a relentless focus on the individual needs of every child....

But, its not the most difficult thing we could be faced with....
Consider this task for example...
Thank You

www.fcrr.org

Science of reading section