

Reading Disabilities in Childhood and Adolescence:



**What research has taught us about
the core learning deficits and
how to provide effective remediation**

Continued.....



Maureen W. Lovett
The Hospital for Sick Children and
University of Toronto





RESEARCH *helps...*

... kids all over the place!

Core Learning Problems

Speech/Language: Inability to manipulate individual speech sounds in words (“phonological awareness”):

What is *dog* without the *d*? “ob”

What is *tip* without the *t*? “it”

What is the first sound in *wish*? “s”

What does ‘*b-r-i-ck*’ say? “birk”

Core Learning Problems

- ❑ **Ineffective strategies for new learning**
 - ❑ Does not use what s/he *does* know
 - ❑ Does not ‘chunk’ word/problem into smaller parts
 - ❑ Does not have good “learning-to-learn” strategies

- ❑ **Failure to attribute success and failure to own efforts**

Beliefs and Attitudes: Emotional Moderators

- ❑ **Attributions about success/failure**
- ❑ **Beliefs about effort and achievement**
- ❑ **Self-efficacy beliefs affect self-regulation, motivation, and affective state**

Beliefs and Attitudes: Developmental Considerations

Until 8 Years:

Belief that effort can compensate for innate ability

By 10 Years:

- ❑ Effort and ability distinguished
- ❑ Self-efficacy beliefs formed
- ❑ Compare own performance to that of peers and to personal and external standards
- ❑ Preference for tasks where self-efficacy believed to be strong

Remediation addresses core deficits directly.

Routes for Effective Remediation of RD

1. **Phonological Training:** Letter-sound and word identification training with concurrent intensive training in sound analysis and sound blending skills.
2. **Strategy Training:** Metacognitive phonics: Training in word identification strategies with letter-sound training support.

Remediation addresses core deficits directly.

Remedial Gains After 35 Hours Instruction: *A 10 Year Old Disabled Reader*

Before

“*why*” for *way*
“*wall*” for *who*
“*but*” for *put*
“*leave*” for *left*
“*moon*” for *money*

After

“*unintelligible*” ✓
“*disengaged*” ✓
“*needlessly*” ✓
“*mistakenly*” ✓
“*uncomprehendingly*” ✓

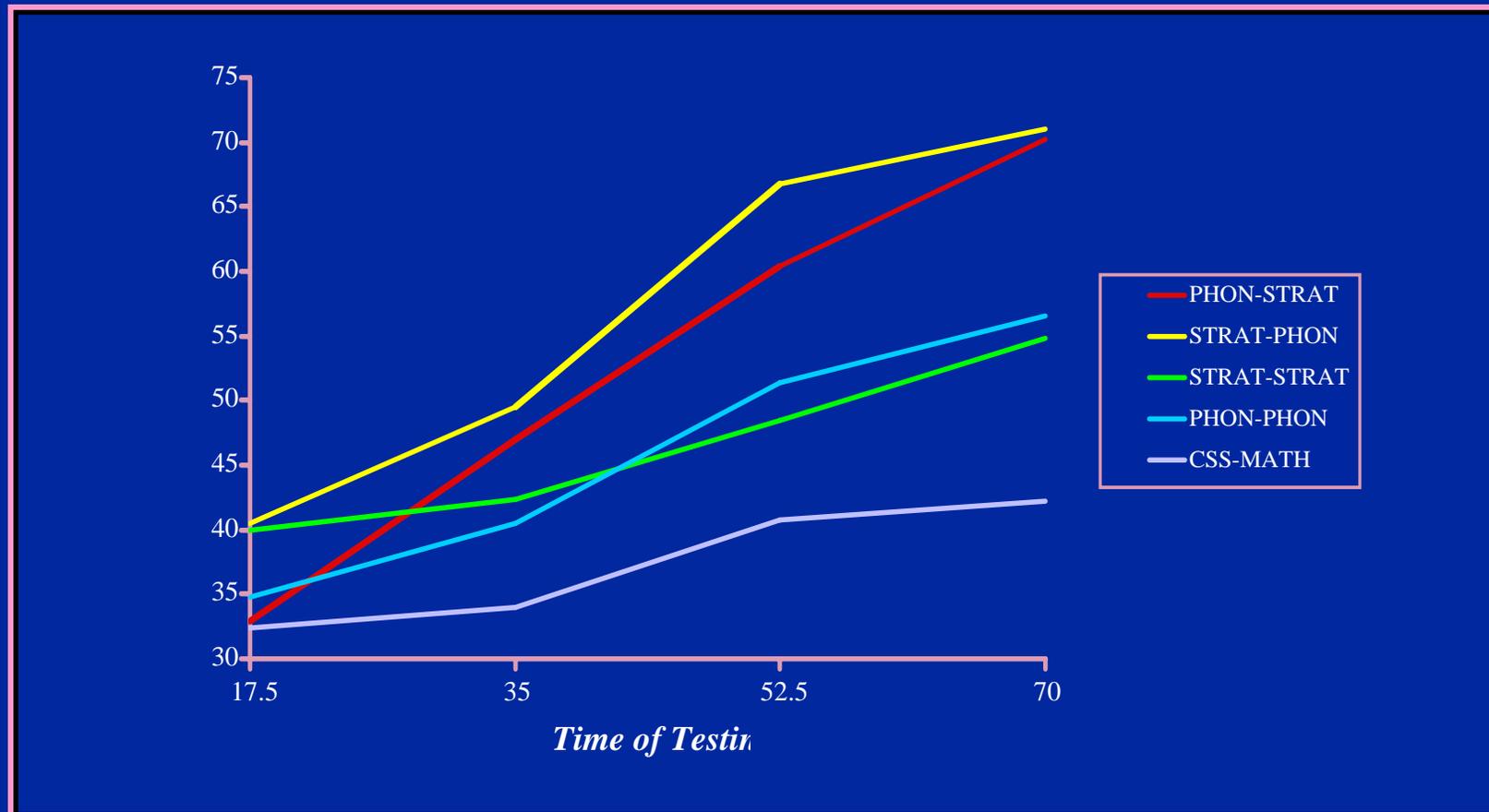
What programs or program combinations are most effective?

PHON	→	STRAT
STRAT	→	PHON
PHON	→	PHON
STRAT	→	STRAT
CSS	→	MATH

(Each program sequence offers
35 hrs + 35 hrs of instruction.)

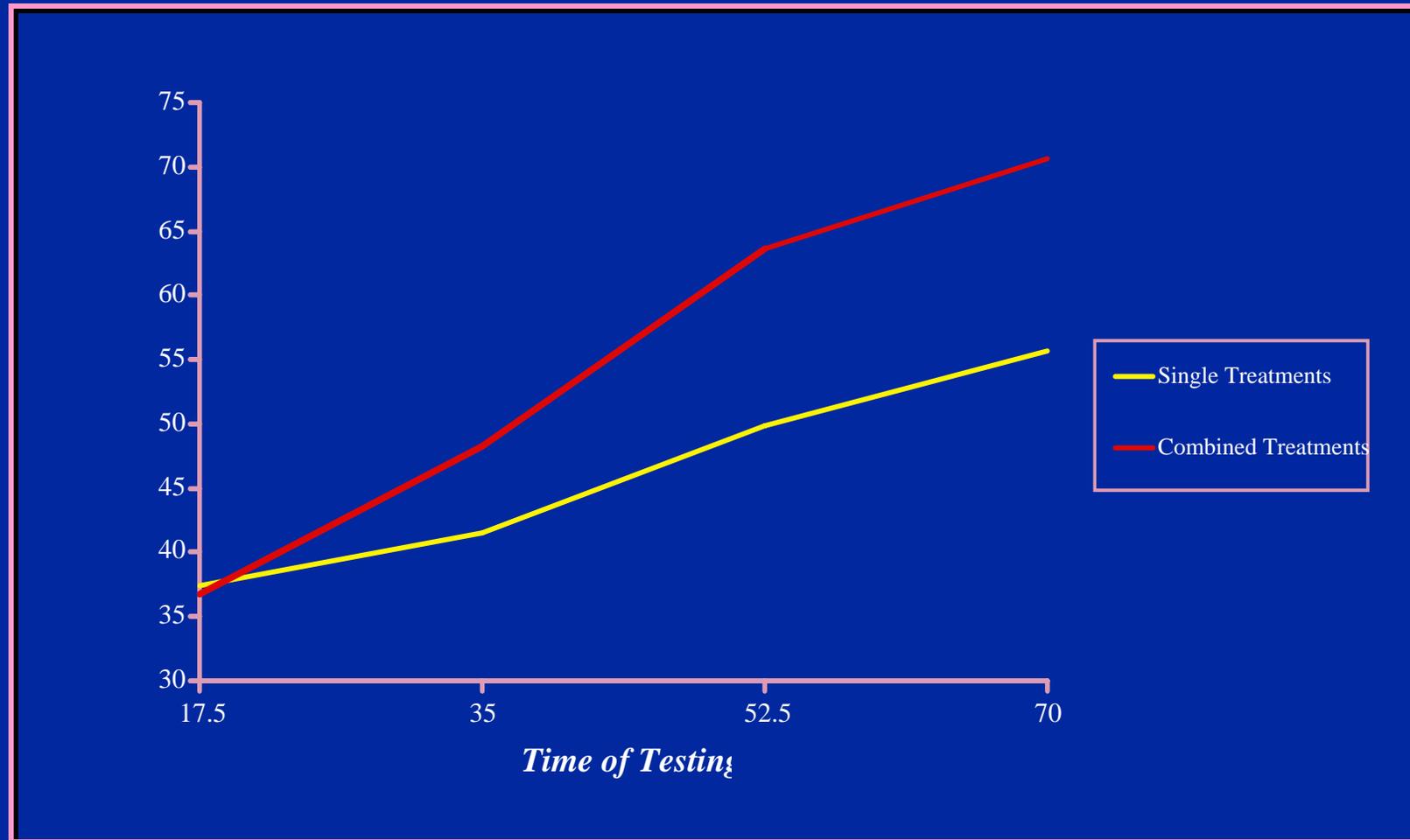
Was there transfer to uninstructed words?

(*bake* → *babe, fake, bike, baker*; *grab* → *graft, stab, grub...*)



Was there transfer to uninstructed words?

Combined vs. Single Treatment Contrast



- ❑ Superior outcomes and faster learning when phonological and strategy-based interventions were combined.
- ❑ Gains from remedial interventions generalized to word identification, nonword reading, and passage reading measures.

Why did the Combined Programs Yield Better Outcomes?

- ❑ Explicit strategy instruction
 - ❑ Children taught to use multiple decoding strategies
 - ❑ Dialogue structures taught
- ❑ Knowledge about language structure
 - ❑ Children trained explicitly to use different levels of subsyllabic segmentation
 - ❑ Children learned about spelling patterns and morphology
- ❑ Both core deficits remediated directly
 - ❑ Phonological and strategy learning deficits addressed

Implications for Treatment

**Cannot circumvent phonological processing or strategy learning deficits in remediating reading disabilities:
Must remediate core areas of deficit.**

PART 2:

Remediation of Decoding and Word Identification Problems

P PACES
H Fluency
A Comprehension
S Whole Class
T



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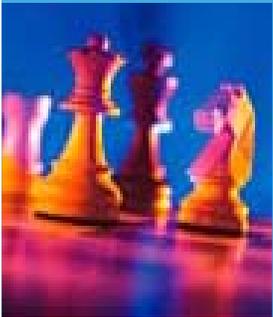
An Integrated Phonological and Strategy Training Program*

* The research version has been known as the PHAST Reading Program

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Empower™ Reading Program Lessons

1. Acquiring prerequisite skills:
 - ❑ Acquisition of letter sounds
 - ❑ 120 Keywords
 - ❑ Vowel and variant vowel pronunciations
 - ❑ Affixes
2. Training on the five decoding strategies.
3. Strategy practice on difficult words using a reciprocal teaching model.
4. Application of strategies during text reading.



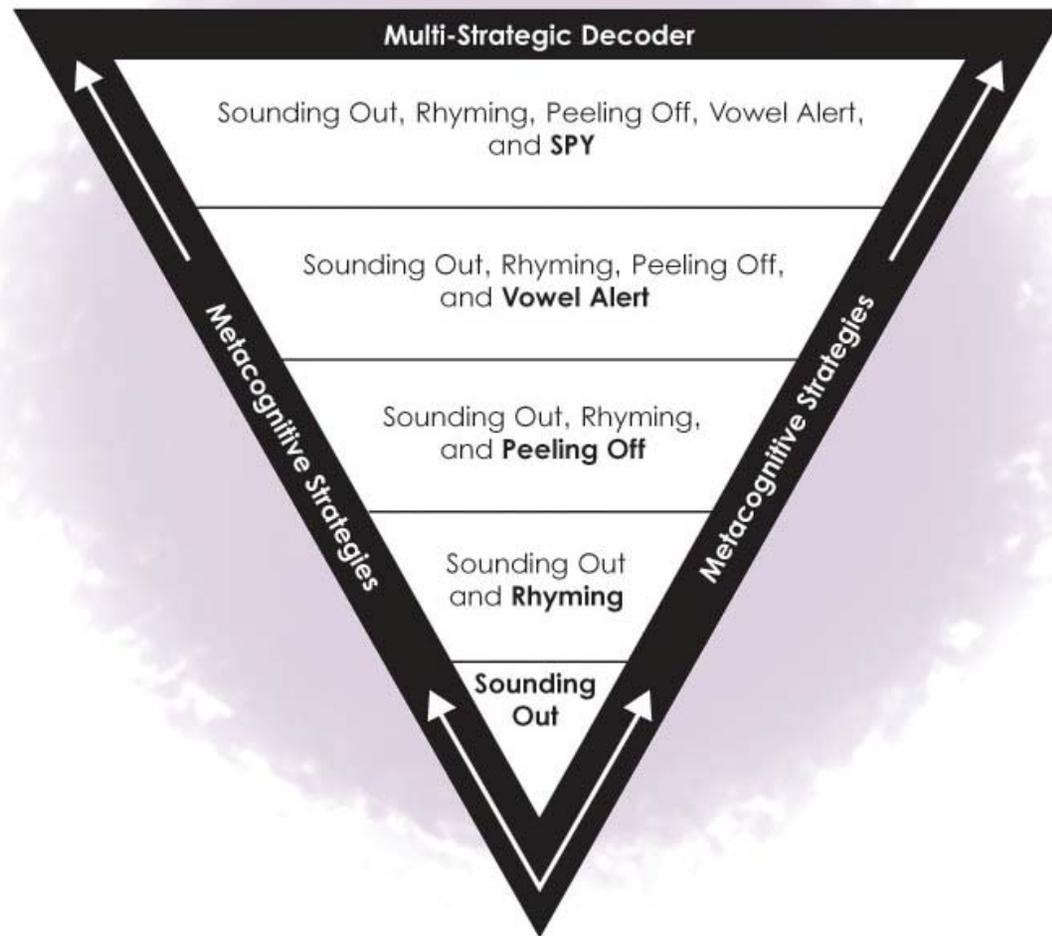
Empower™ Word Identification Strategies

- **Sounding Out:** strand → *sss + t + rrr + aaa + nnn + d*
- **Rhyming:** limerick → *(him)(her)(kick)*
- **Peeling Off:** unrelenting → *(un)(re)lent(ing)*
- **Vowel Alert:** head bead break
seam? *great?* *breath?*
- **SPY:** dogmatic → *dog mat ic*

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Empower™ Reading

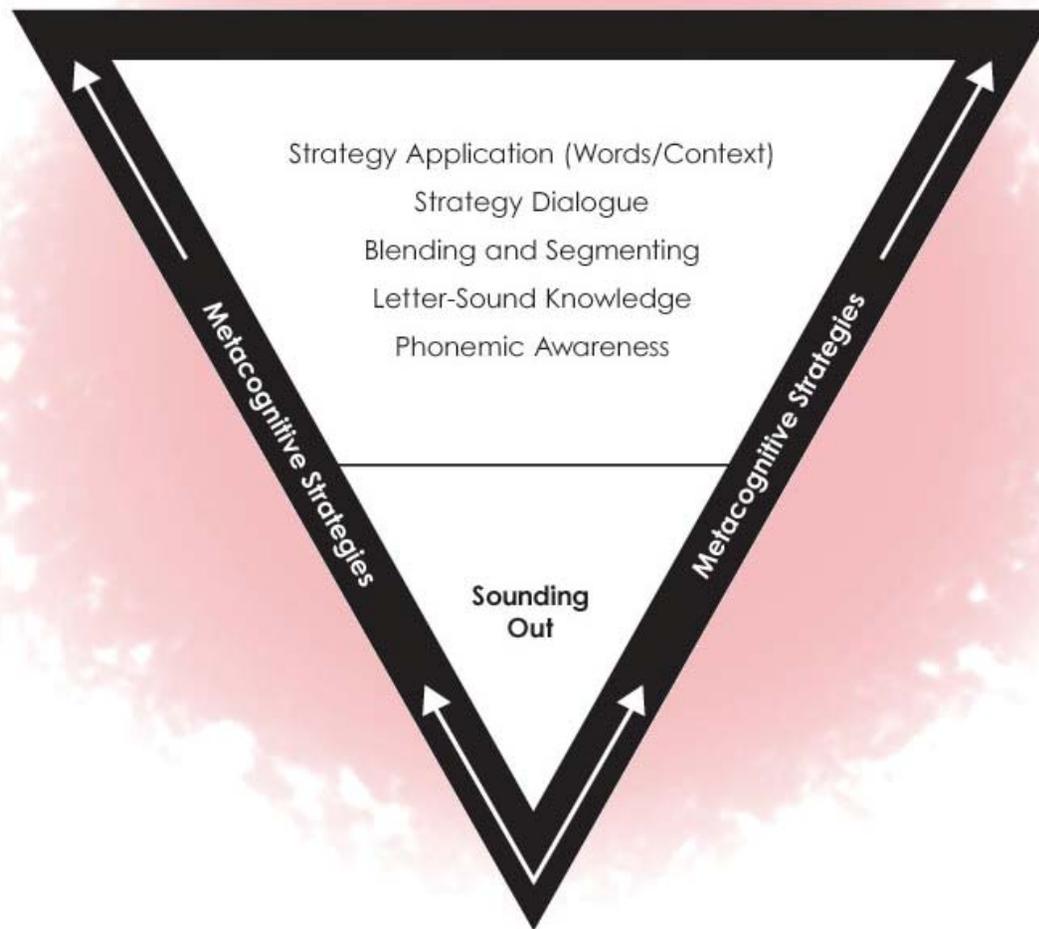
Strategy Breakdown



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Sounding Out Strategy



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Sounding Out Strategy Dialogue

Know the sounds

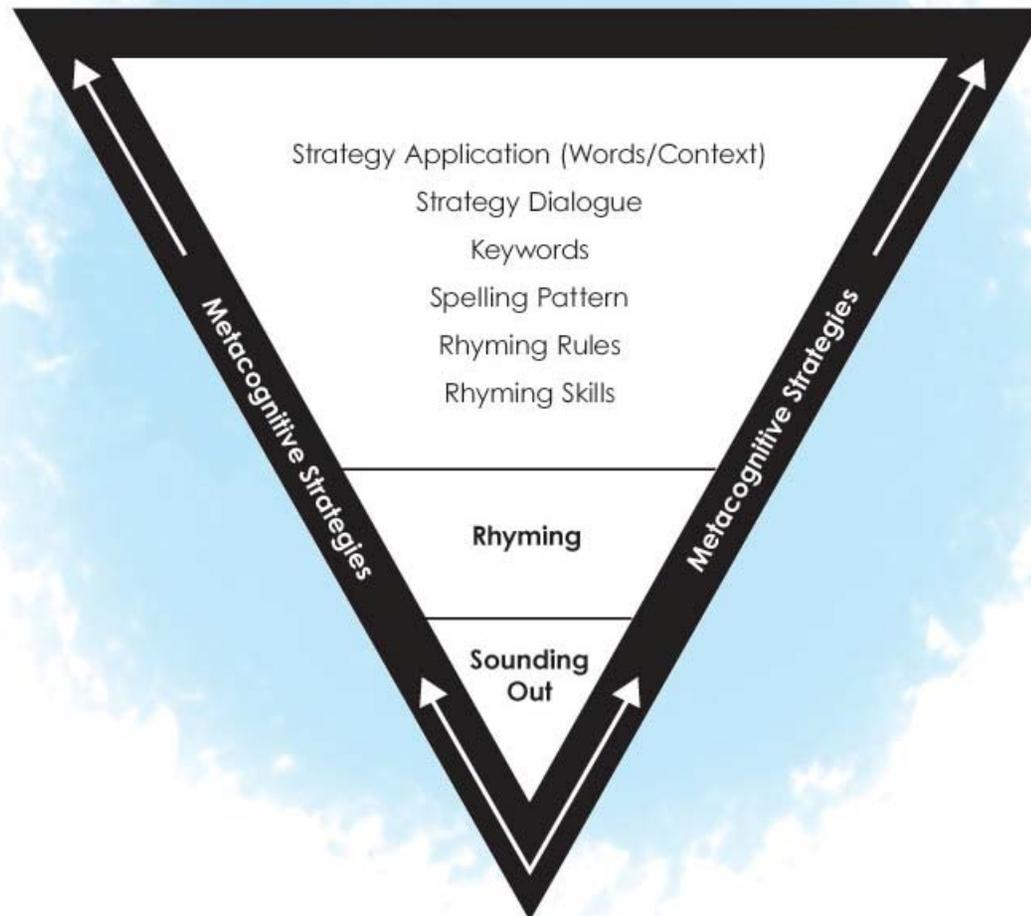
Blend the sounds
(slowly without stopping)

Read the word!

man →

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Rhyming Strategy



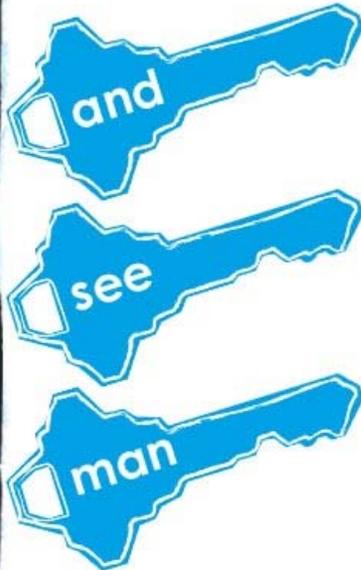
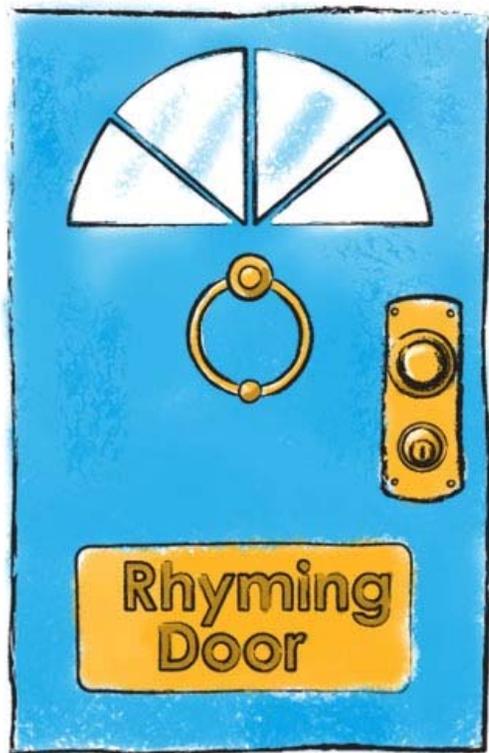
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a	e	i	o	u
grab	he	hi	go	club
place	speak	nice	boat	luck
pack	scream	kick	job	glue
dad	ear	did	rock	bug
made	eat	slide	dog	jump
rag	red	wife	oil	drum
page	see	pig	broke	fun
nail	need	right	fold	skunk
rain	queen	like	on	up
take	keep	file	long	bus
talk	sweet	will	phone	use
all	tell	him	zoo	nut
am	them	time	food	
name	ten	in	good	
champ	end	find	look	
man	tent	vine	fool	y
and	her	king	cop	
nap	test	sink	for	cry
car	yes	ship	more	baby
shark	let	squirt	corn	gym
smart	flew	this	nose	
has		wish	not	
smash		it	could	
mask		white	round	
cat		dive	out	
ate		give	cow	
gave			glow	
paw			down	
pay			boy	

From "Putting struggling readers on the PHAST track: A program to integrate phonological and strategy-based remedial reading instruction and maximize outcomes" by Lovett, M.W., Lacerenza, L., & Borden, S.L., 2000, *Journal of Learning Disabilities*, 33, 458-476. Copyright 2000 by PRO-ED, Inc. Reprinted with permission.

FIGURE 4. The PHAST Keyword Bank: A physical organization of keyword spelling patterns by vowel and rime units. (From the Benchmark School Word Identification/Vocabulary Development Program by Gaskins, Downer, & Gaskins, 1986, Media, PA: Benchmark School. Copyright 1986 by Benchmark School. Adapted with permission.)

Rhyming Door



That's a *progressive* idea.

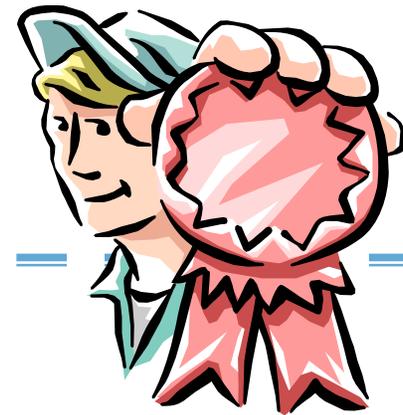
publisher

thermostat

brand

hydrogen

✓
brand
and



thermostatic

her go cat kick



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Peeling Off Strategy



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be-	im-	sup-
ap-	con-	sur-
a-	ex-	per-
al-	pro-	at-
for-	an-	dif-
dis-	de-	pre-
in-	di-	
re-	com-	

-s	-ful	-ic
-ing	-ly	-ant
-ed	-tion	
-er	-sion	
-es	-ment	
-est	-ness	
-en	-age	
-y	-or	

Circle the affixes.

- | | |
|---------------|---------------|
| 1. consultant | 7. magnetic |
| 2. difficult | 8. damage |
| 3. perfect | 9. completely |
| 4. pretended | 10. assistant |
| 5. attack | 11. important |
| 6. surprise | 12. pleasant |

From "Putting struggling readers on the PHAST track: A program to integrate phonological and strategy-based remedial reading instruction and maximize outcomes" by Lovett, M.W., Lacerenza, L., & Borden, S.L., 2000, *Journal of Learning Disabilities*, 33, 458-476. Copyright 2000 by PRO-ED, Inc. Reprinted with permission.

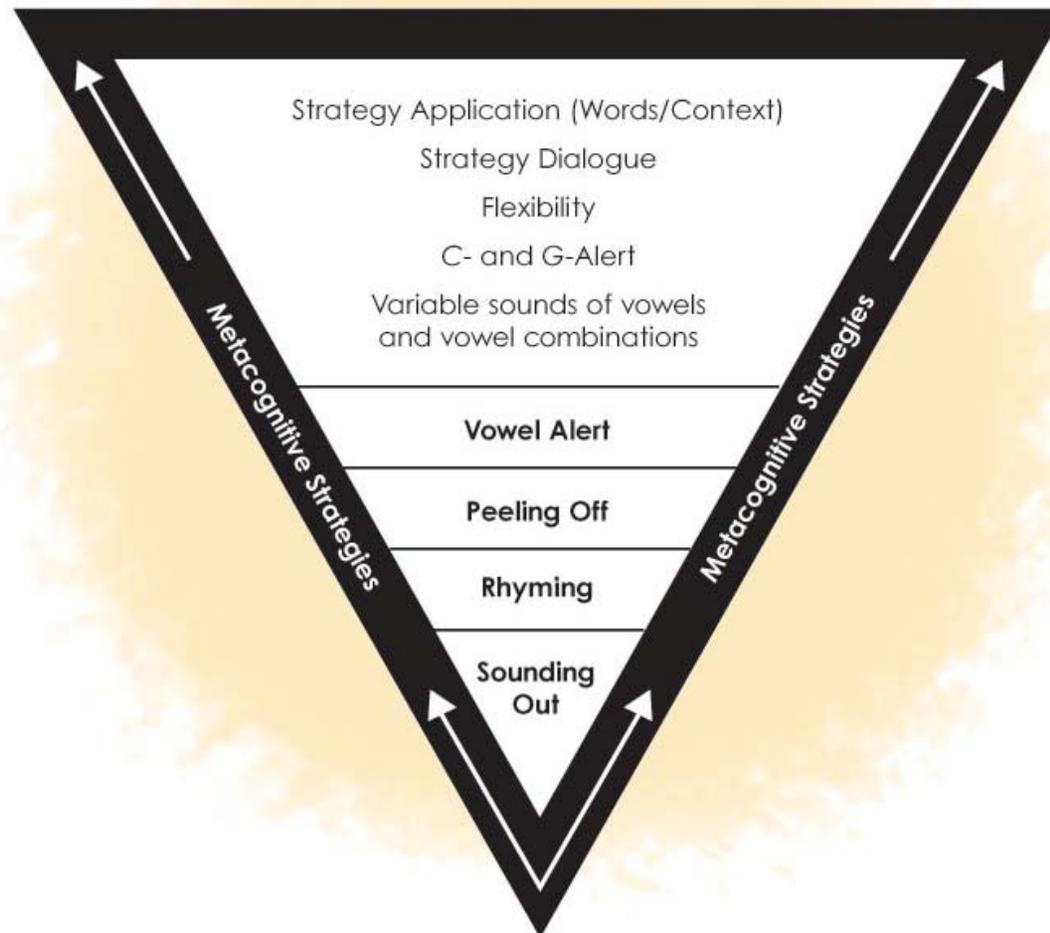
FIGURE 9. Working on the Peeling-Off Strategy: Peeling-Off Worksheet 39 (-ant introduced). Children find and circle the affixes. Readers practice the dialogue, "I peel off (*affix*) at the beginning/end of the word. The root is _____. The word is _____."

Peeling Off Tree

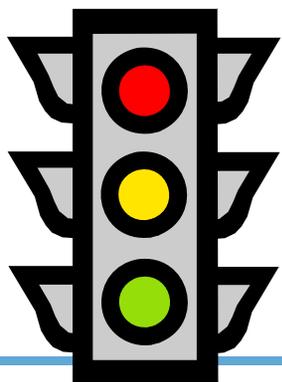


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Vowel Alert Strategy



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Vowel Alert

Single Vowels

at	a	ate
end	e	he
it	i	hi
on	o	go
up	u	use
cry	y	baby gym

Vowel Pairs

bead	ea	head/great
glow	ow	cow
zoo	oo	look
pie	ie	chief

C-Alert

cat/nice

G-Alert

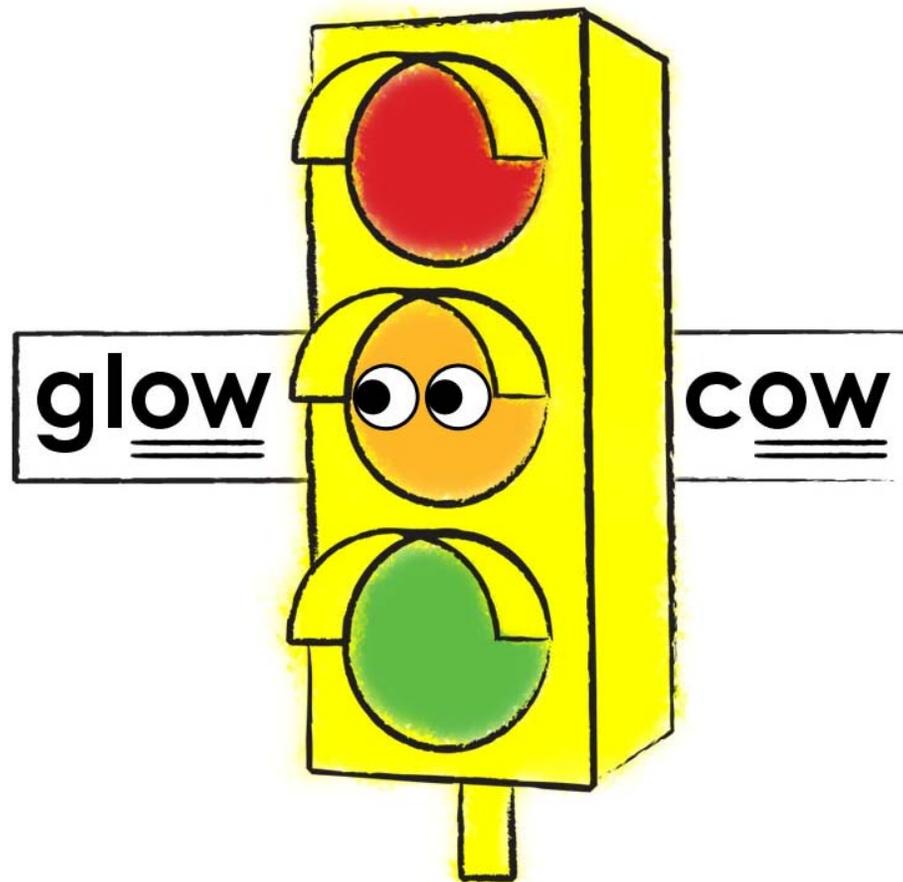
go/gym

SAMPLE DIALOGUE:

Vowel Alert Strategy

“When I see *ea* in a word, first, I’ll try *ee*, then, I’ll try *e*. Then, I’ll try *a*, and see what gives me a real word. First, I’ll try *ee*. I sound out the word and see if it makes a word I know: *breeth*. It doesn’t make a real word, but I don’t give up. I go on to the next step. Now, I’ll try *e*: *breath*. Yes, that’s a real word! My strategy worked: First, I tried one sound, then, I tried another. I was flexible, I stuck at it, and I got it!”

Vowel Alert Stoplight



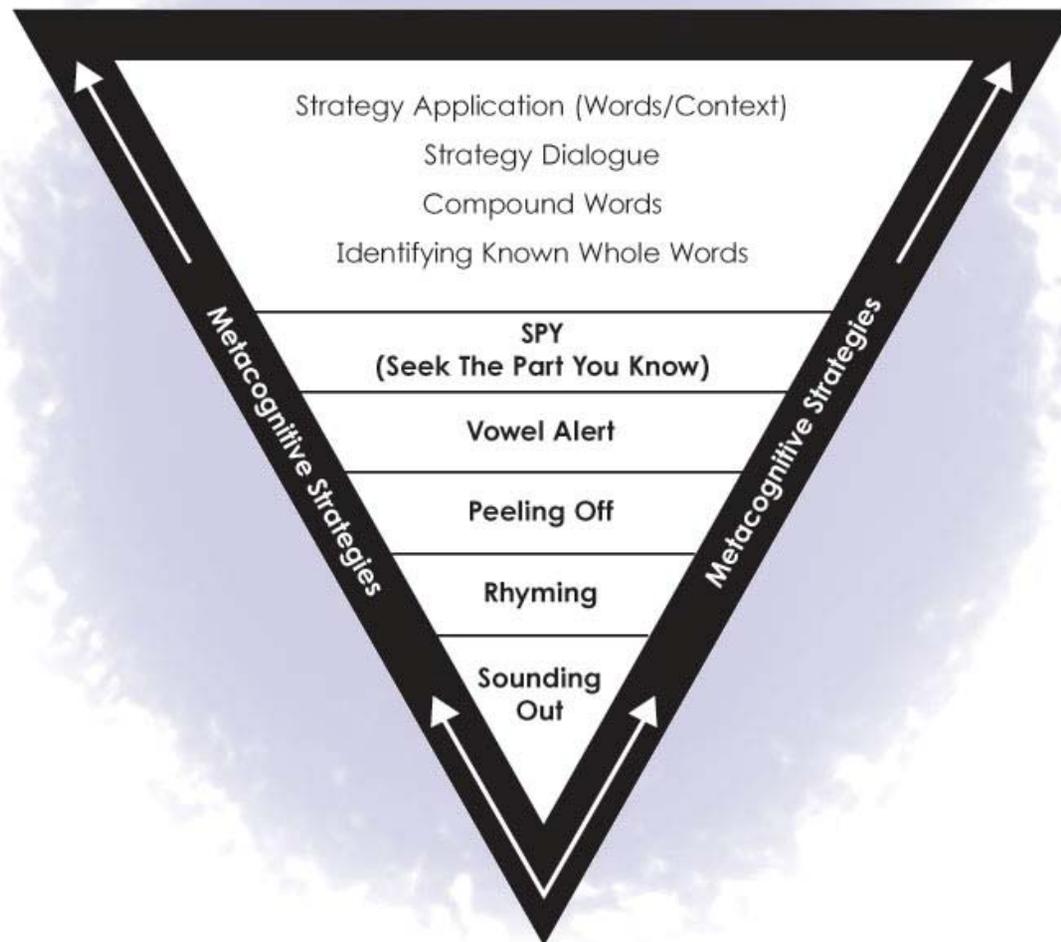
leathery

bead
head
great



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SPY Strategy



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The *raincoat* is red.

speedboat

catfish

thunderstruck

flagship

football

wildcat

thunderstruck

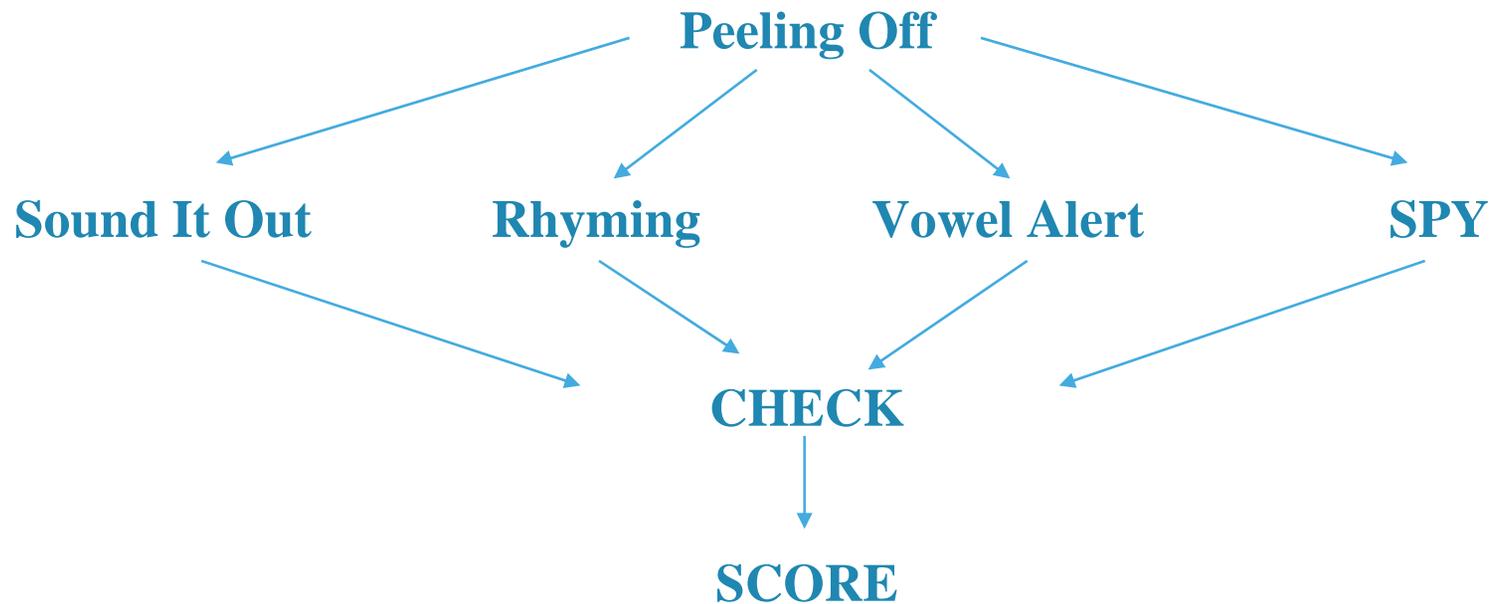


thunderstruck

fun her luck

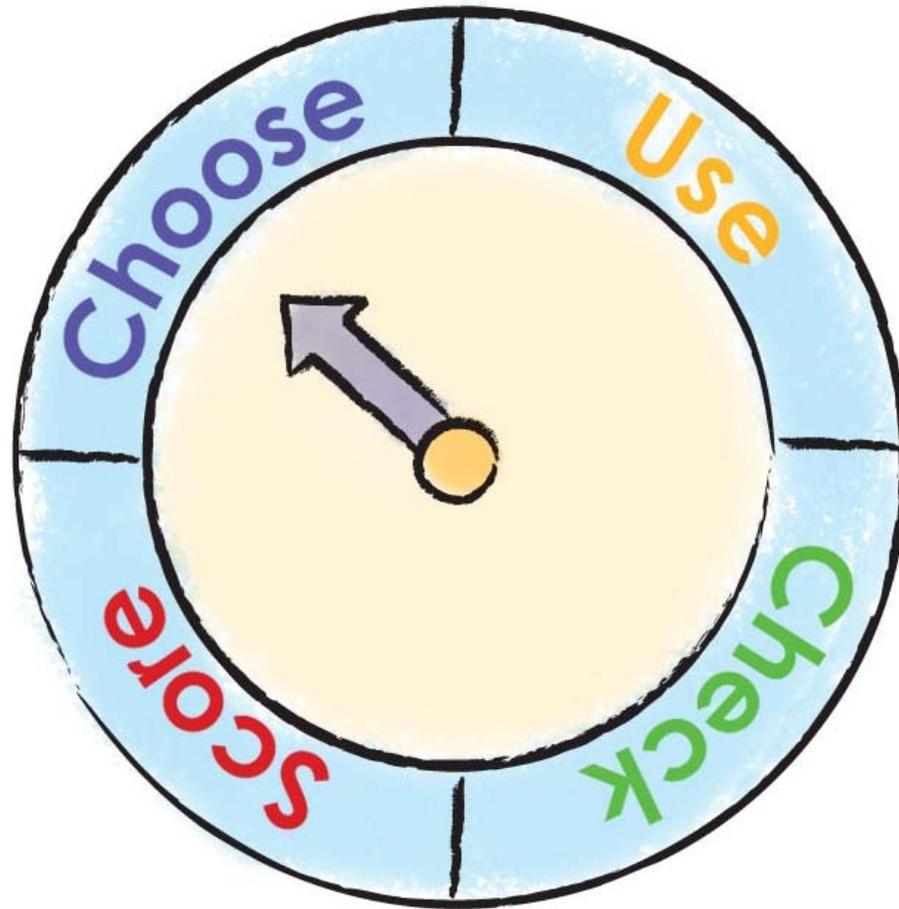


Using the 5 Decoding Strategies



Choose: The best strategy
Use: The strategy correctly
Check: Each step—"How am I doing?"
Score: The result—"I did it!"

The Game Plan



Metacognitive Focus

- ❑ Thinking about thinking
- ❑ “Self-talk”, self-regulated learning
- ❑ Conscious awareness of strategy use
- ❑ Student understands strategies, can name and describe them, knows when to use them
- ❑ Selects, Applies, Monitors, and Evaluates
- ❑ Multi-strategic, flexible, and persistent
- ❑ Attributes success to strategy use

Empower™ Reading

Key Instructional Features

- ✓ Eclectic and balanced instructional methods
- ✓ Prior knowledge
- ✓ Preskill mastery
- ✓ Teacher modelling
- ✓ Sequential and cumulative program
- ✓ Mass practice and cumulative review
- ✓ Scaffolded cognitive instruction
- ✓ Strategy dialogue training (self-talk)
- ✓ Explicit teaching of self-monitoring and strategy evaluation skills
- ✓ Attributional retraining

Challenge Words



Ecosystems

investigations

researchers

microecosystem

photosynthesis

autotroph

metabolism

ecological niche

thermodynamics



Challenge Words

Automotive

radiator

accelerator

cylinder

ignition

torque steer

methanol

hydraulic valve

fulcrum

**Are these programs equally effective
for students of differing
SES, IQ, and language backgrounds?**

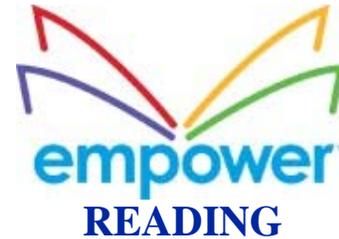


**Do program benefits extend to
disadvantaged students?
To lower-IQ students?
To English language learners?**

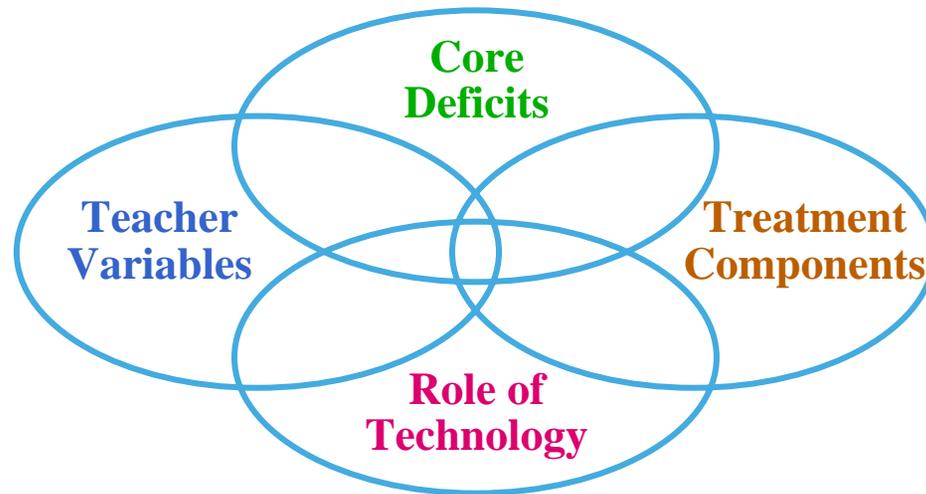
These findings suggest:

- ❑ Addressing more than one core deficit results in faster learning and superior outcomes over time.
- ❑ These research-based remedial programs are equally effective for students of differing SES, IQ, and language backgrounds.

Reading Disabilities CAN Be Remediated!



Community-Based Translation Research



LDRP Laboratory Research



Translating Research Programs into Community Classrooms

Current Initiatives

- ❑ **Whole class intervention in Grades 1 or 2:**
Empower™ Reading Decoding and Comprehension Programs.
- ❑ **Small group remediation for disabled readers (Grs. 2-8):**
Empower™ Reading Decoding, Fluency, and Comprehension Programs
- ❑ **High school intervention for struggling readers**

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