



# The Science of Reading Fluency

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## Goals:

- Affirm
- Remind
- Expand



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## Key Takeaways:



- Fluency is a complex **OUTCOME**.
- Fluency is **necessary** but not **sufficient** for reading comprehension (and motivation).
- We can use **rate PLUS accuracy** measures for important assessment purposes/decisions.
- Some students are **fluent enough**; others can be taught.
- **FLUENT** reading is **NOT** fast reading!

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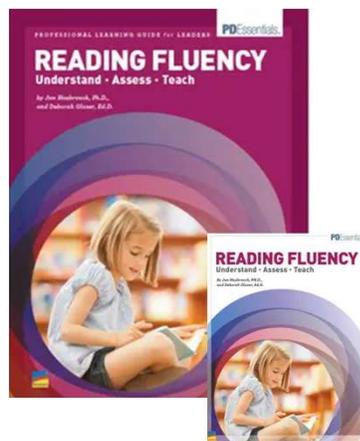
## Reading Fluency

Understand \* Assess \* Teach

Jan Hasbrouck, Ph.D.

Deborah Glaser, Ed.D.

- Ch. 1 Defining Reading Fluency
- Ch. 2 Assessing Reading Fluency
- Ch. 3 Teaching Reading Fluency
- Ch. 4 Integrating Fluency Skills



[www.benchmarkeducation.com](http://www.benchmarkeducation.com)

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## DEFINING reading fluency



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“Many questions surround the definition of fluency  
as a concept...” p. 9

Hasbrouck & Glaser (2019)

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The development of reading fluency starts early...

Fluency develops in **progressions**:

Accuracy then automaticity at the **letter**, **letter-pattern**, and **word** levels---plus semantic and syntactic processes at the phrase and sentence levels.

**THEN**: fluent effortless reading of **text**, so attention can be more fully allocated to comprehension.

Wolf & Katzir-Cohen (2001)

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“We define (passage) fluency as:

- reasonably **accurate** reading
- at an appropriate **rate**
- with suitable **expression**
- that leads to accurate and deep **comprehension** and **motivation.**”

Hasbrouck & Glaser (2019)

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“Using [a] blend of science and practice, we conclude... that the performance standards for [the] three components of fluency should vary depending upon the demands of the task.” p. 14

Hasbrouck & Glaser (2019)

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Reasonably accurate?

First!

Foremost!

Forever!

Foundation of

Fluency!

**ACCURACY!**

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Reasonably accurate?



Aim for *at least* \_\_\_\_\_ %

Emerging readers? \_\_\_\_\_ %

...for successful **INDEPENDENT** reading

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Reasonably accurate?

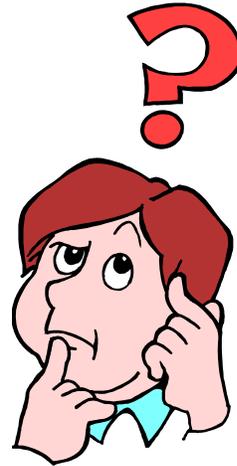


Studies have revealed that if the meaning of as few as **2% of words** in a text are unknown, comprehension can be significantly impaired.

Schmitt, N., Jiang, X., & Grabe, W. (2011). The percentage of words known in a text and reading comprehension. *The Modern Language Journal*, 95(1), 26-43.

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“This table may not include all of the drugs that prolong the **QT** interval or cause **torsades**. Risk of drug-induced prolongation may be increased in women and the elderly.”



From  
*Tarascon Pocket Pharmacopoeia*  
30 words

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Reasonable accuracy?

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Appropriate rate?



**FAST AS POSSIBLE???**

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Appropriate rate?



Fluent reading should sound  
like speech.

Stahl & Kuhn (2002)

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## Appropriate rate?



Number of words read correctly per minute:

Oral Reading Fluency (ORF)

- Unpracticed text (“cold read”)
- 60-seconds
- Standardized scoring protocol
- Grade level text for screening

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## Common ORF assessments:



DIBELS 8<sup>th</sup> Ed. U of Oregon K-8

Acadience Dynamic Measurement Group K-6

AIMSweb Pearson K-8

easyCBM Riverside K-8

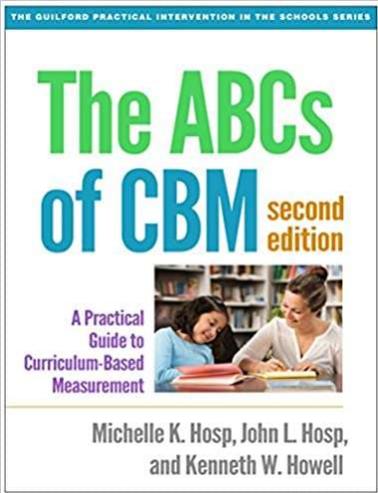
FastBridge Renaissance K-12

ISIP Istation K-3

others...

**ALL** are  
curriculum-based  
measures (CBM)

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**The ABCs  
of CBM** second  
edition

A Practical  
Guide to  
Curriculum-Based  
Measurement

Michelle K. Hosp, John L. Hosp,  
and Kenneth W. Howell

## The ABCs of CBM

(2016) 2nd Edition

Michelle Hosp, John Hosp,  
& Ken Howell

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## ORF Norms



Percentiles for oral reading fluency (ORF)  
norms on unpracticed, grade level text:  
words correct per minute

**Hasbrouck & Tindal**  
1992; 2006; 2017

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## COMPILED ORF NORMS

Hasbrouck & Tindal (2017)

Grade	%ile	BOY WCPM	MOY WCPM	EOY WCPM
1	90		97	116
	75		59	91
	<b>50</b>		<b>29</b>	<b>60</b>
	25		16	34
	10		9	18
2	90	111	131	148
	75	84	109	124
	<b>50</b>	<b>50</b>	<b>84</b>	<b>100</b>
	25	36	59	72
	10	23	35	43
3	90	134	161	166
	75	104	137	139
	<b>50</b>	<b>83</b>	<b>97</b>	<b>112</b>
	25	59	79	91
	10	40	62	63

Grade	%ile	BOY WCPM	MOY WCPM	EOY WCPM
4	90	153	168	184
	75	125	143	160
	<b>50</b>	<b>94</b>	<b>120</b>	<b>133</b>
	25	75	95	105
	10	60	71	83
5	90	179	183	195
	75	153	160	169
	<b>50</b>	<b>121</b>	<b>133</b>	<b>146</b>
	25	87	109	119
	10	64	84	102
6	90	185	195	204
	75	159	166	173
	<b>50</b>	<b>132</b>	<b>145</b>	<b>146</b>
	25	112	116	122
	10	89	91	91

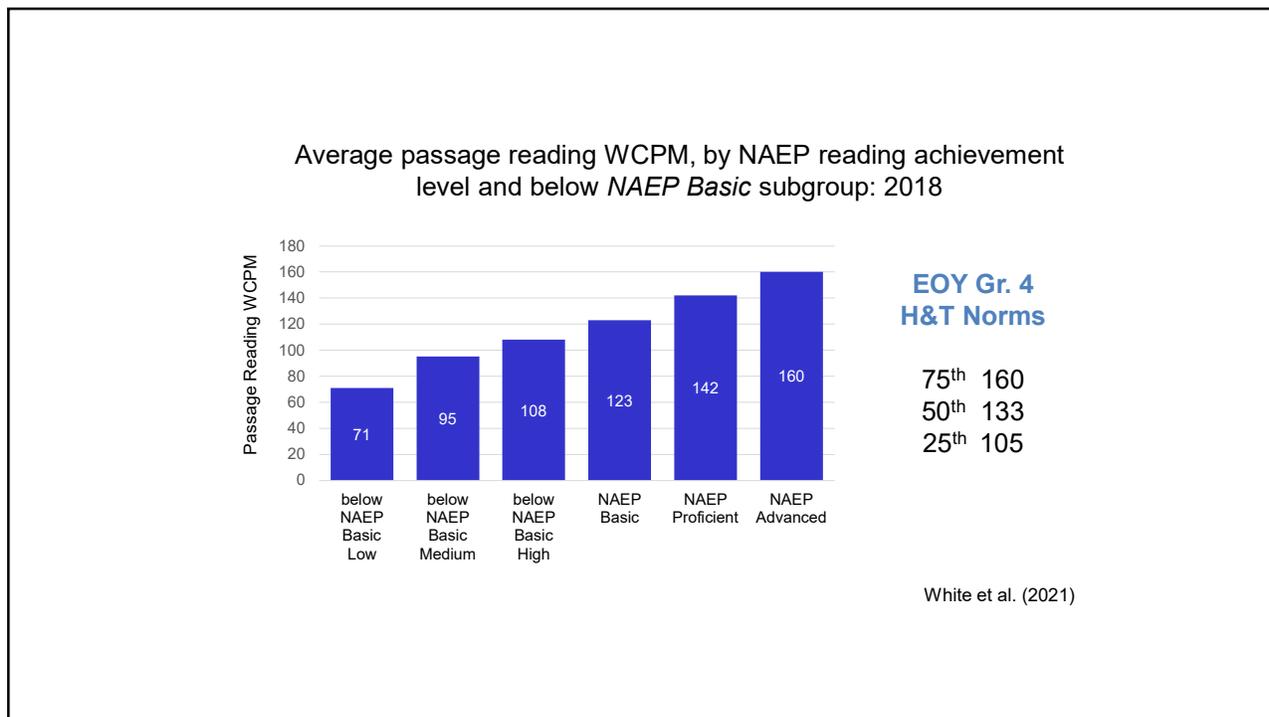
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\_\_\_\_\_th %ile range on oral reading fluency  
 (ORF) norms on unpracticed, grade level text

White, S. et al. (2021). *The 2018 NAEP Oral Reading Fluency Study* (NCES 2021-025). USDOE. Washington, DC: IES

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**# 1 LIMITED EVIDENCE** from research or theory or practice that suggest a benefit to reading ABOVE the 50-75<sup>th</sup>%ile range. Can be detrimental.

**# 2 SIGNIFICANT EVIDENCE** that it is crucial to help students read with fluency solidly at or very near the 50<sup>th</sup>%ile to support comprehension (and motivation).

Research suggests 75<sup>th</sup>%ile **sufficient** for optimizing comprehension; the 50<sup>th</sup>%ile **necessary** for comprehension.

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Suitable expression?



Typically mirrors spoken language and conveys meaning.

Expression primarily an **OUTCOME** of comprehension rather than **CONTRIBUTING** to comprehension.

Groen et al. (2018)

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“Robert borrowed my new bicycle.”

- **ROBERT** borrowed my new bicycle.  
(Robert, not Raymond, borrowed my bike.)
- Robert **BORROWED** my new bicycle.  
(Robert did not steal my bike.)
- Robert borrowed **MY** new bicycle.  
(Robert didn't borrow your bike, he borrowed mine.)
- Robert borrowed my **NEW** bicycle.  
(Robert didn't borrow my old bike, he borrowed the new one.)
- Robert borrowed my new **BICYCLE**.  
(Robert didn't borrow my new book, he borrowed my bike.)

Rasinski (2012)

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## The **ROLE** of reading fluency?



**ACCURACY:** Comprehension limited by inaccurate reading (below 95%)

**RATE:** Comprehension limited by inefficient, slow, laborious reading or reading too fast

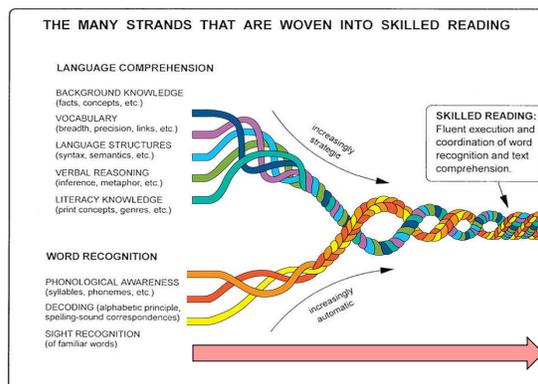
Lack of fluency = lack of motivation = fewer words read = smaller vocabulary  
= limited comprehension (self-perpetuating)

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## The **ROLE** of reading fluency?



Does all this apply to  
**ALL** students?



Scarborough (2001)

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## The **ROLE** of reading fluency?



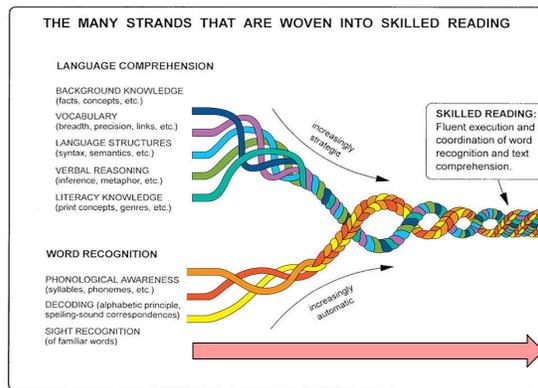
“**How** do children learn to read?...

The answer is the **same** for all children.

Cultural, economic, educational circumstances obviously affect children’s **progress**...

*but what they need to learn does not change.”*

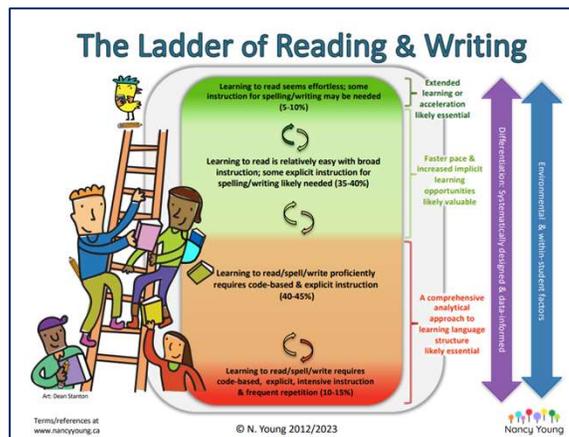
Dr. Mark Seidenberg  
*Language at the Speed of Sight* (2017)



Scarborough (2001)

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## The **ROLE** of reading fluency?



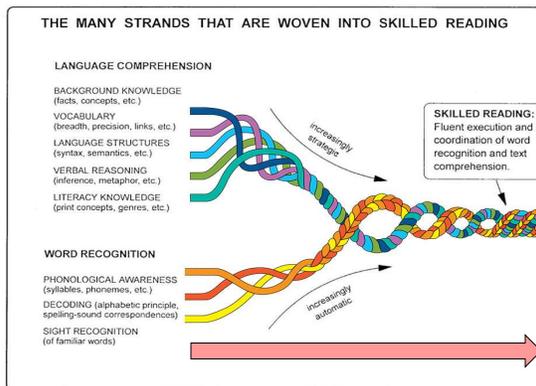
USED WITH PERMISSION

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The **ROLE** of reading fluency?

Multilingual learners?

Students with dyslexia?



Scarborough (2001)

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## ASSESSING reading fluency



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Three key **COMPONENTS** of passage fluency

- reasonably **accurate** reading
- at an appropriate **rate**
- with suitable expression

words **CORRECT** per **MINUTE** (ORF)

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Common  
Confusion  
**# 1**



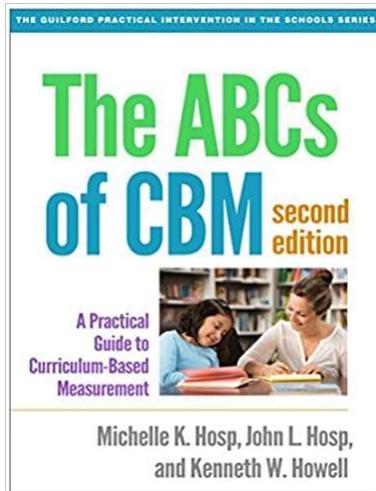
Oral reading fluency (ORF)  
measures fluency

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## Oral reading fluency assessments were misnamed!

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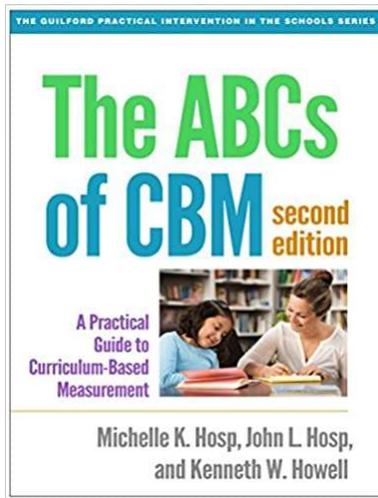
## The ABCs of CBM

(2016) 2nd Edition

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& Ken Howell

Oral Reading Fluency  
(ORF)

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## The ABCs of CBM

(2016) 2nd Edition

Michelle Hosp, John Hosp,  
& Ken Howell

Oral Reading Fluency  
(ORF)

Oral Passage Reading  
(OPR)

RAFT?

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ORF a measure of  
**ACCURACY & RATE**

**Automaticity**

J. Hosp & Suchey (2014)

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## Assessing **FLUENT** passage reading?



Able to read unpracticed, grade level text:

- with sufficient **ACCURACY**
  - at least 95% (or 97-98% for emerging readers)
- at an appropriate **RATE**
  - 50+<sup>th</sup> percentile on H&T norms 1<sup>st</sup> 60 seconds
- with suitable **EXPRESSION**

**PLUS:** Check for understanding

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## Assessing **Expression**



**LEVEL 4** Expressive interpretation

**LEVEL 3** 3-4 words phrased in groups

**LEVEL 2** Awkward & unrelated groupings

**LEVEL 1** Word-by-word

National Assessment of Educational Progress NAEP

Zutell & Rasinski (1991)

**Multidimensional Fluency Rubric:**

Expression & Volume; Phrasing; Smoothness; Pace

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Common  
Confusion

# 2



A higher WCPM score is better

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Appropriate rate?



Research suggests:

75<sup>th</sup>ile **sufficient** for optimizing comprehension

50<sup>th</sup>ile **necessary** for comprehension

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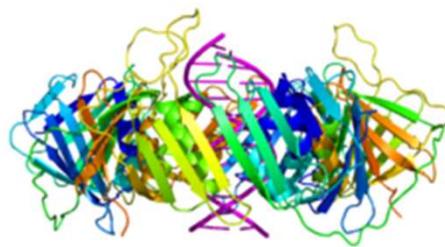
Common  
Confusion

# 3



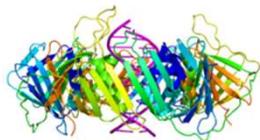
We should **REALLY** be  
assessing comprehension 

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Comprehension  
is very, **VERY**  
complex!

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“Comprehension performance can’t be reduced to a single score because *it’s not a single thing.*”

“Every individual has a whole range of comprehension abilities...that depends upon their *innate abilities* as well as *what* they are reading and what the *purpose* of the reading is.”

“**Stop measuring comprehension as if it is a single thing.**”

Instead assess:

- Words read accurately & fluently
- Language ability
- Curriculum-based assessments of what has been taught
- Think-alouds

Dr. Hugh Catts  
*Rethinking Reading Comprehension*  
AIM Institute for Learning & Research 3/11/23

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40+ years of research...



ORF/WCPM measures have a  
**moderate-to-strong correlation**  
with reading comprehension

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## CBM-R ORF Scores Correlate with Reading Comprehension



Measure	Validity Coefficients
Oral Recall / Retell	
Cloze	
Question Answering	
Oral Reading Fluency	

Fuchs, Fuchs, Hosp, & Jenkins (SSR, 2001)

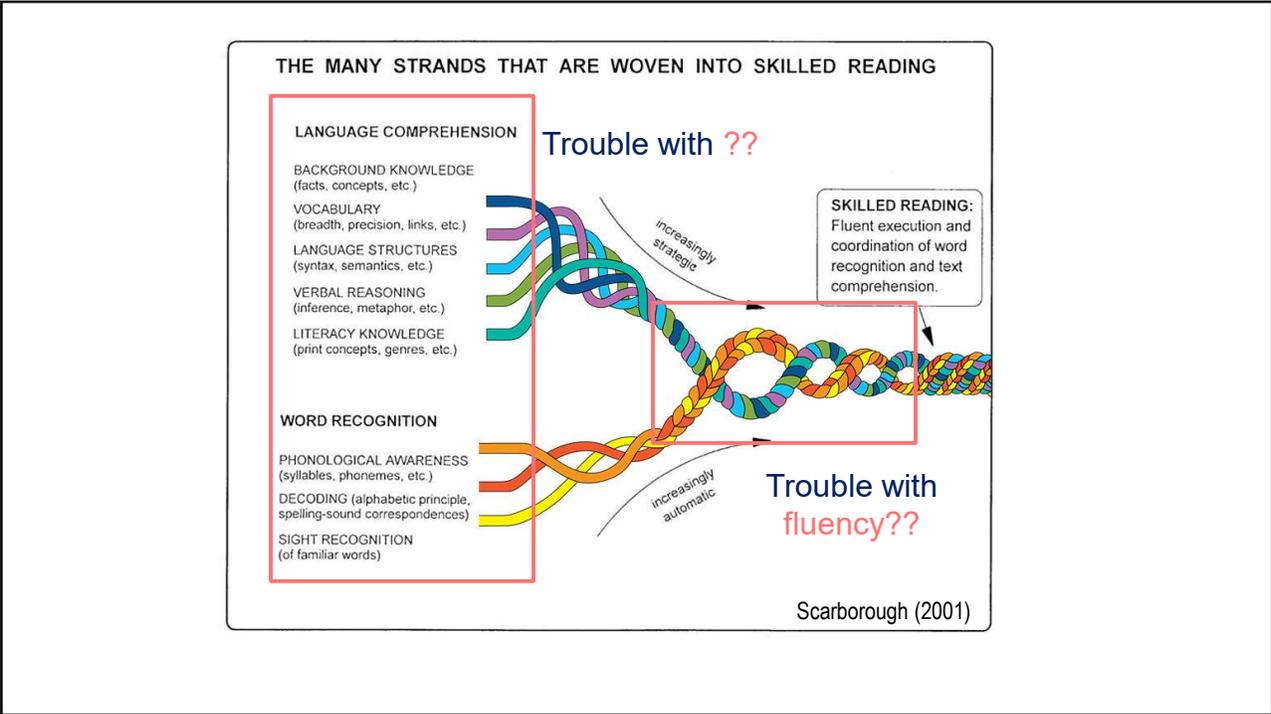
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## Common Confusion # 4



Students with low WCPM scores  
need a fluency intervention

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**ORF**  
assessments  
function as a  
thermometer

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### ORF assessment as a **thermometer**:

- Both have proven **reliability** and **validity**
- Can be used **quickly**
- Provide “score” compared to a **benchmark**
- **NOT diagnostic**; “One piece of the puzzle”

ORF takes our students’ **academic “temperature”**.

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### Assessment **sequence**?

- 1) Screening (LNF, LSF, WRF, WCPM, etc.)  

- 2) Skills diagnostics (PA, phonics, passage fluency, etc.)  

- 3) Instruction/Intervention!  

- 4) Progress monitoring  


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# TEACHING

reading fluency



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Science

Learning to read is a BIG DEAL!

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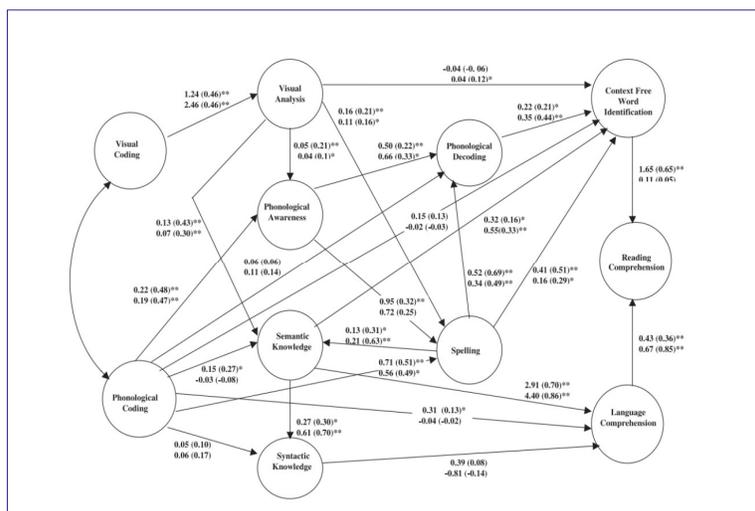


Science

“Reading is a highly complex task that involves many interconnected and codependent linguistic processes that draw upon a variety of separate skills.”

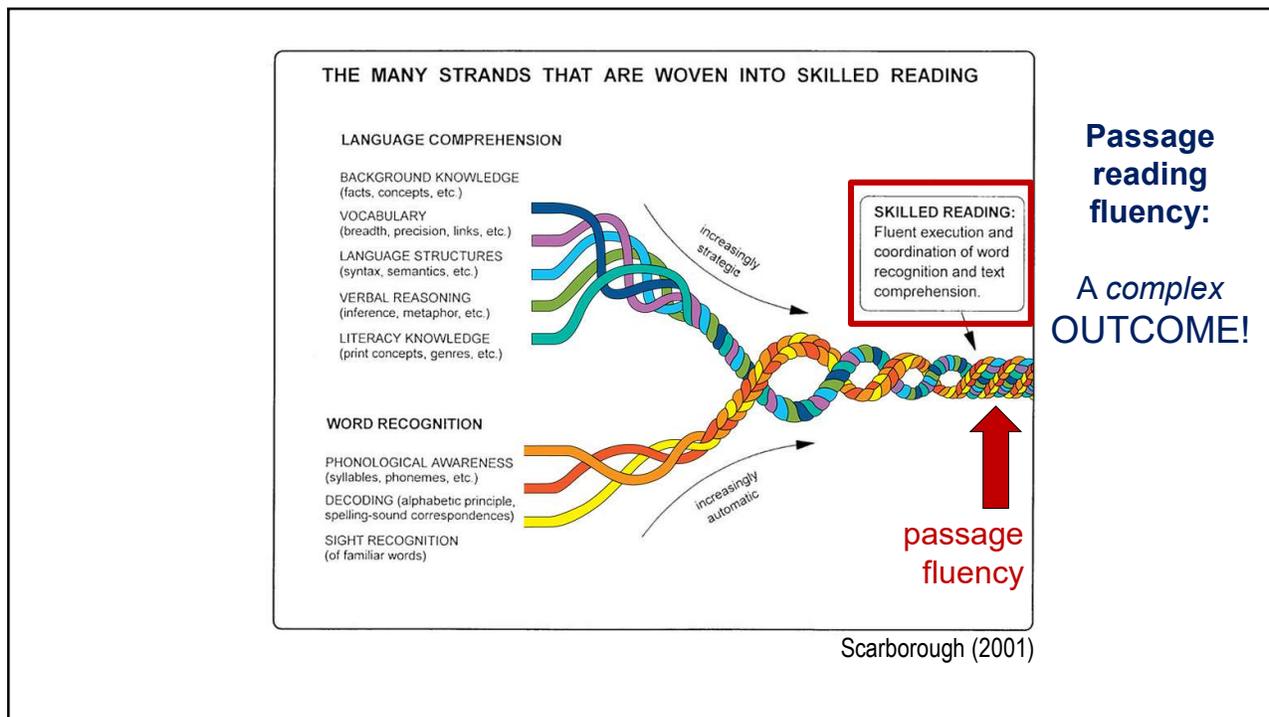
Hasbrouck & Glaser (2019)

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Vellutino, F. R., Tunmer, W. E., Jaccard, J. J., & Chen, R. (2007). Components of Reading Ability: Multivariate Evidence for a Convergent Skills Model of Reading Development, *Scientific Studies of Reading*, 11:1, 3-32.

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Science

“...reading is not learned in the same way we learn to talk.”

Dr. Mark Seidenberg  
*Language at the Speed of Sight* (2017)

58



Science

Learning to read requires "...building a new circuit linking the visual code to existing neural systems for language..."

Dr. Mark Seidenberg  
*Language at the Speed of Sight (2017)*

59

### Differentiation Necessary!



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"Cultural, economic, educational circumstances obviously affect children's progress..."

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## TEACHING Reading Fluency

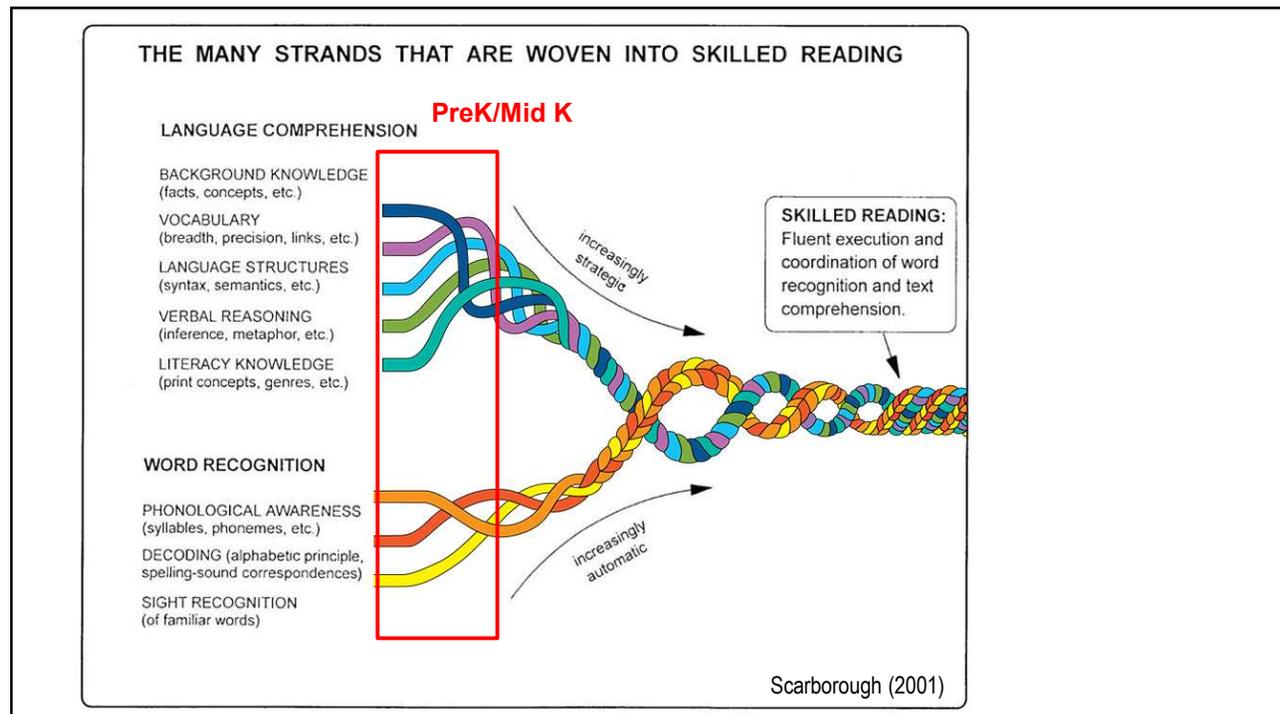


### TRIPLE A!

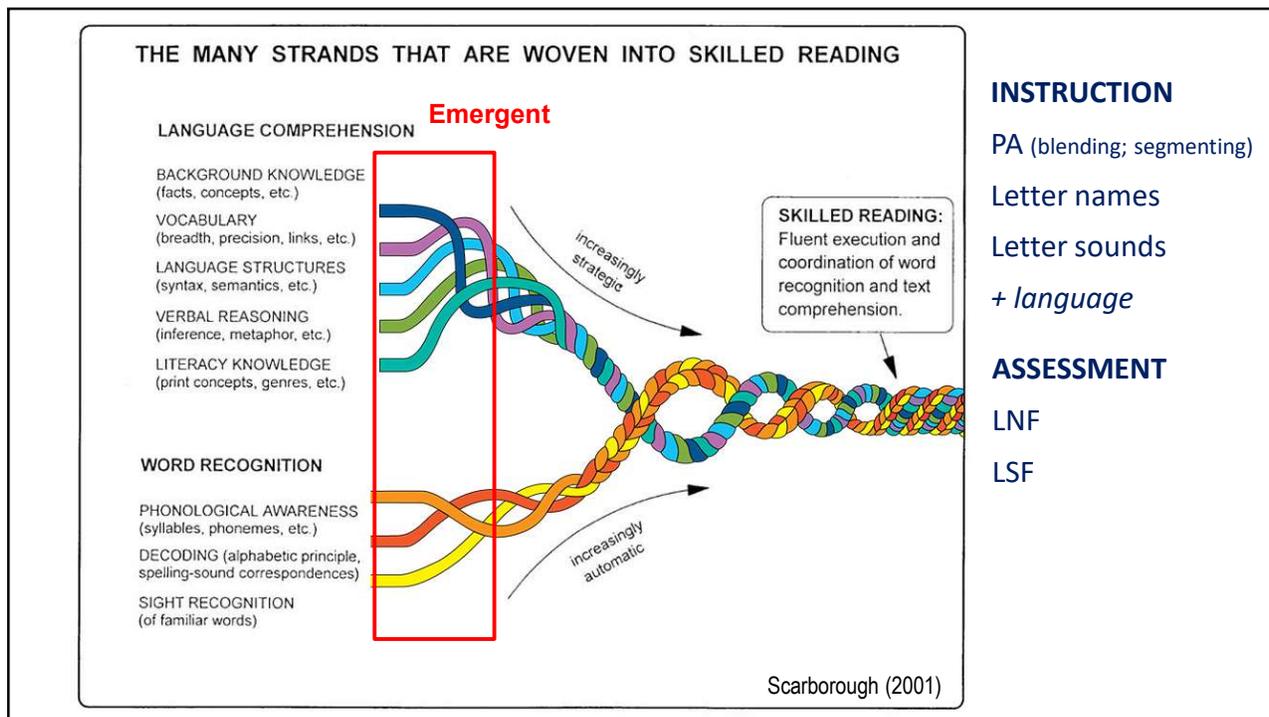
- ACCURACY!
- AUTOMATICITY!
- ACCESS meaning!

Hasbrouck & Glaser (2019)

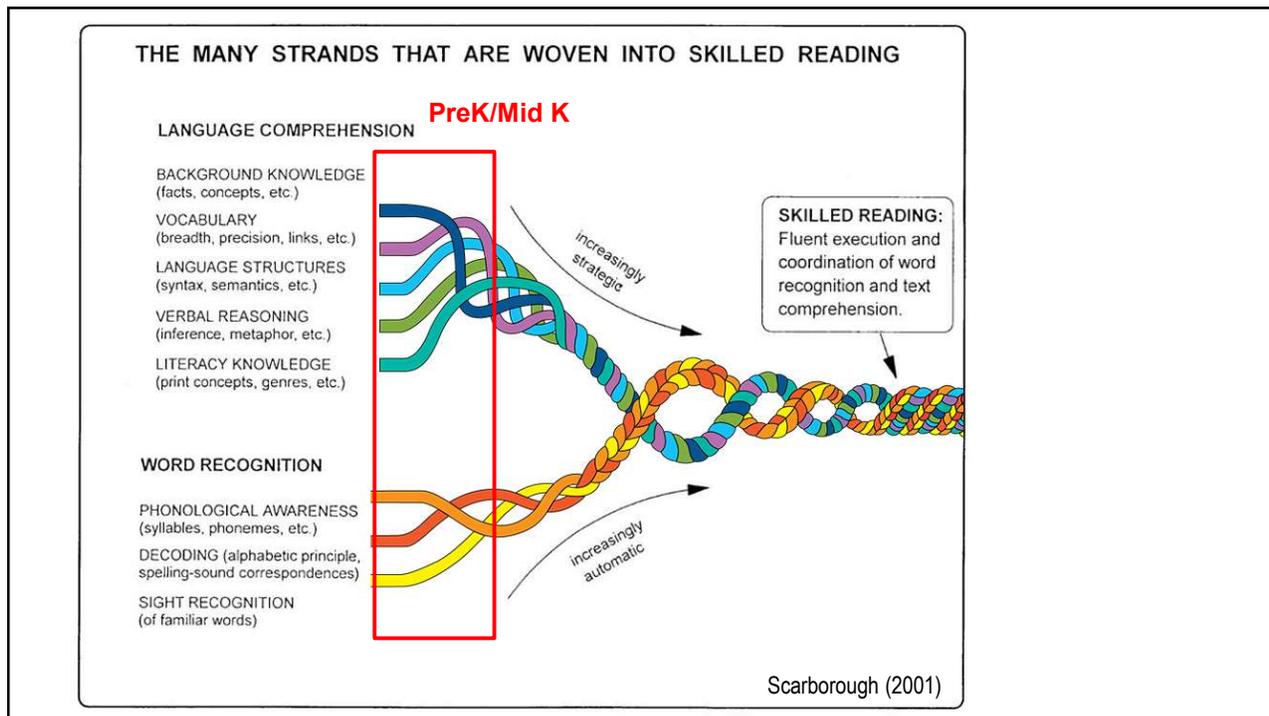
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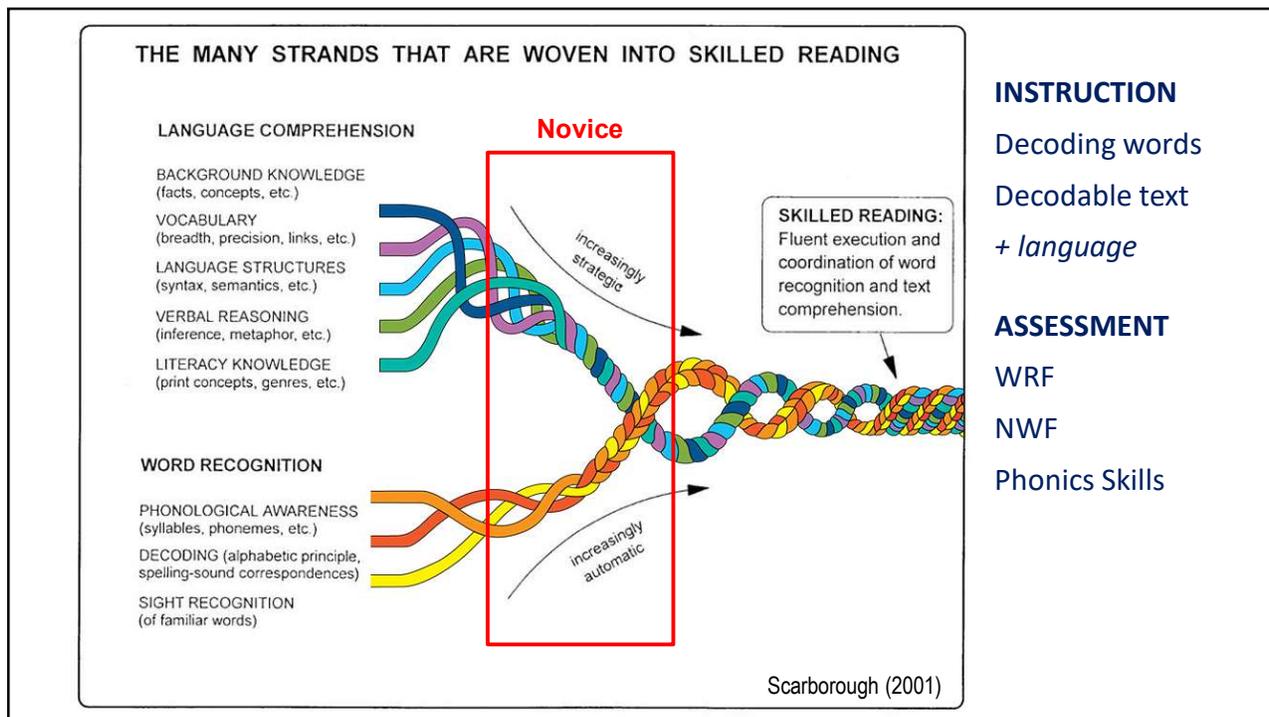
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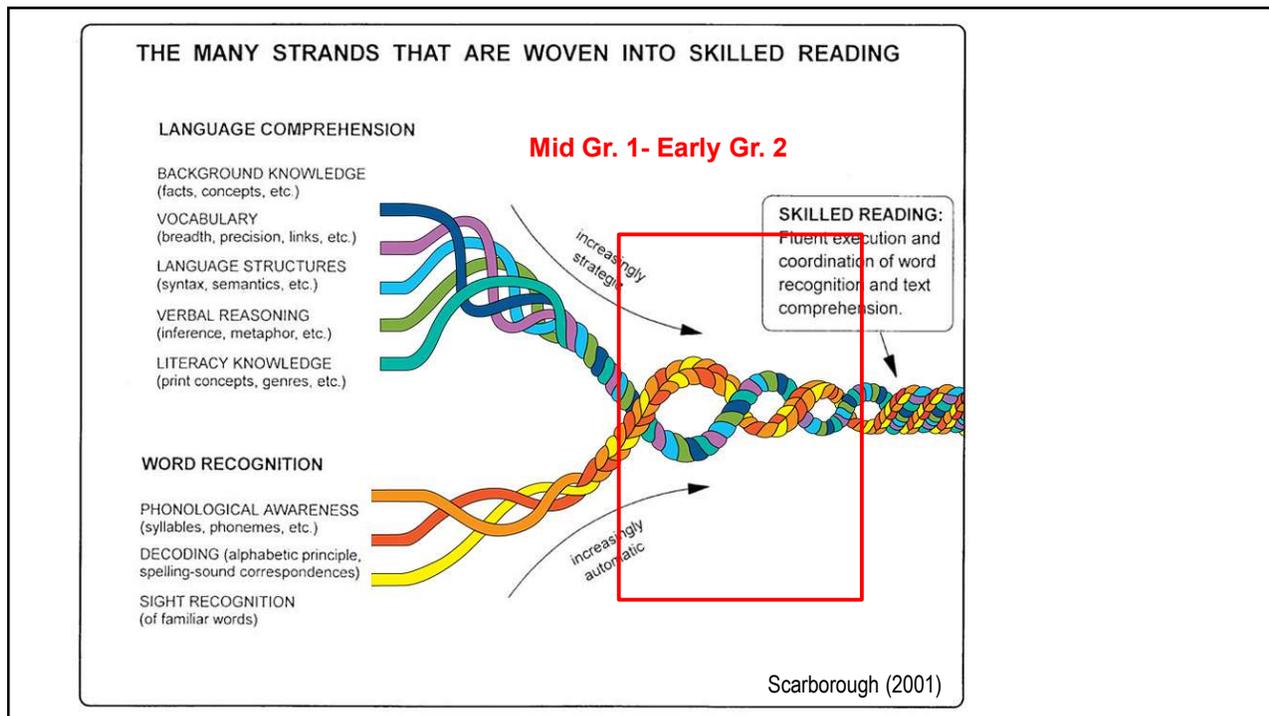
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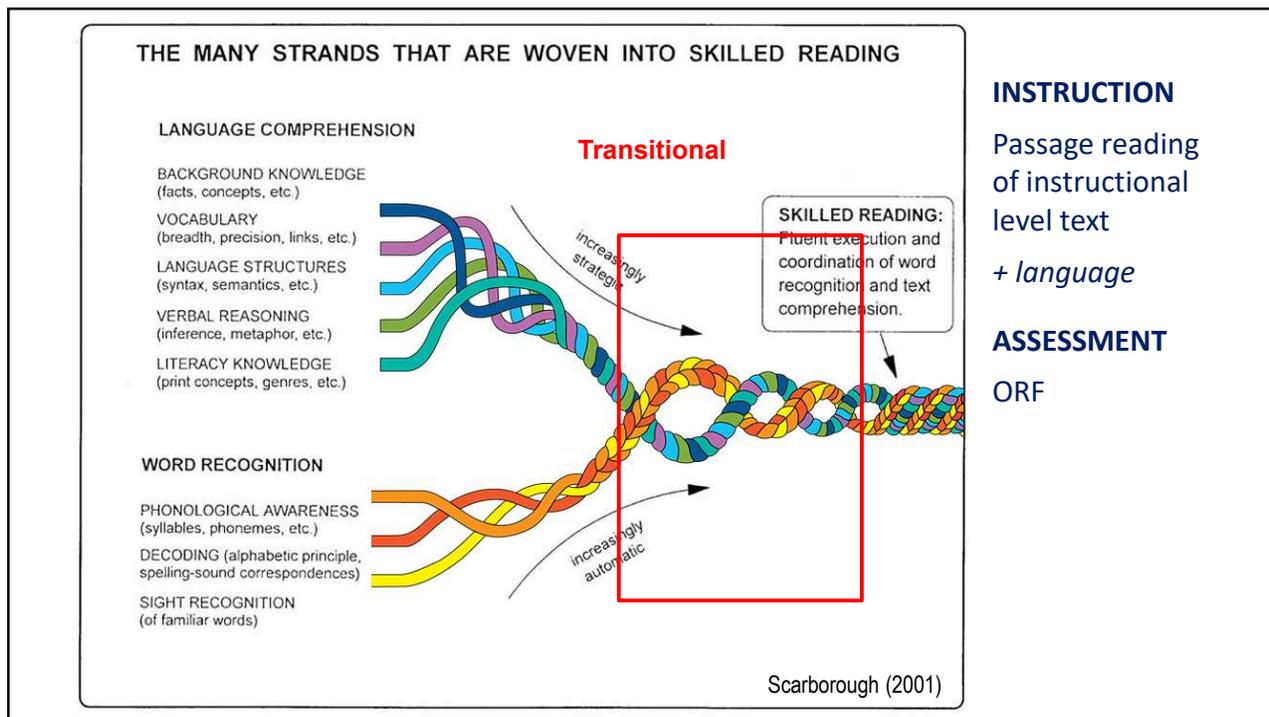
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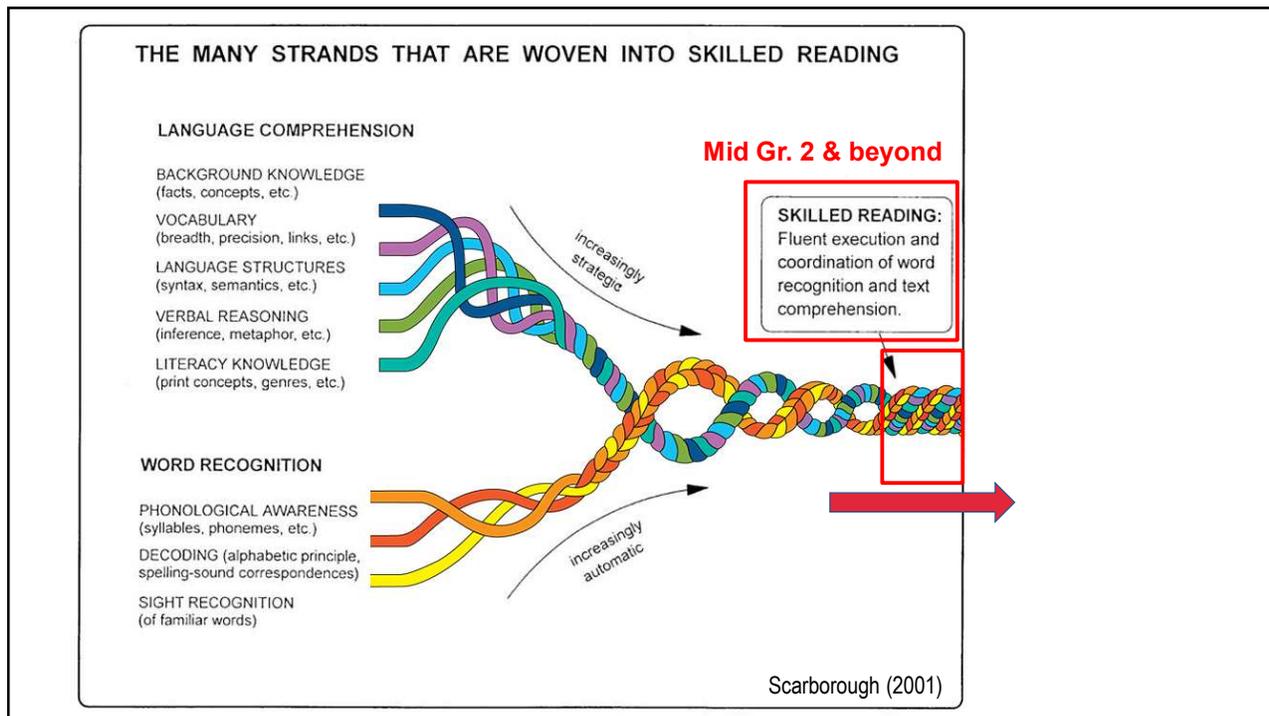
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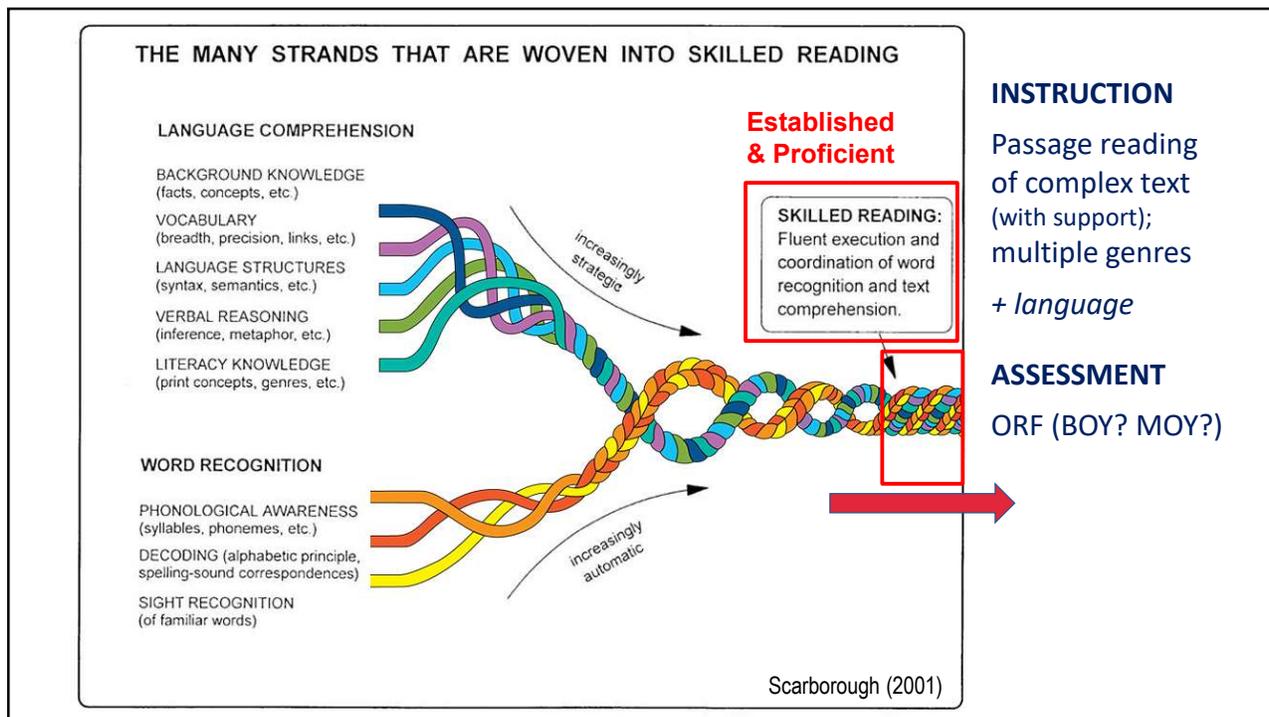
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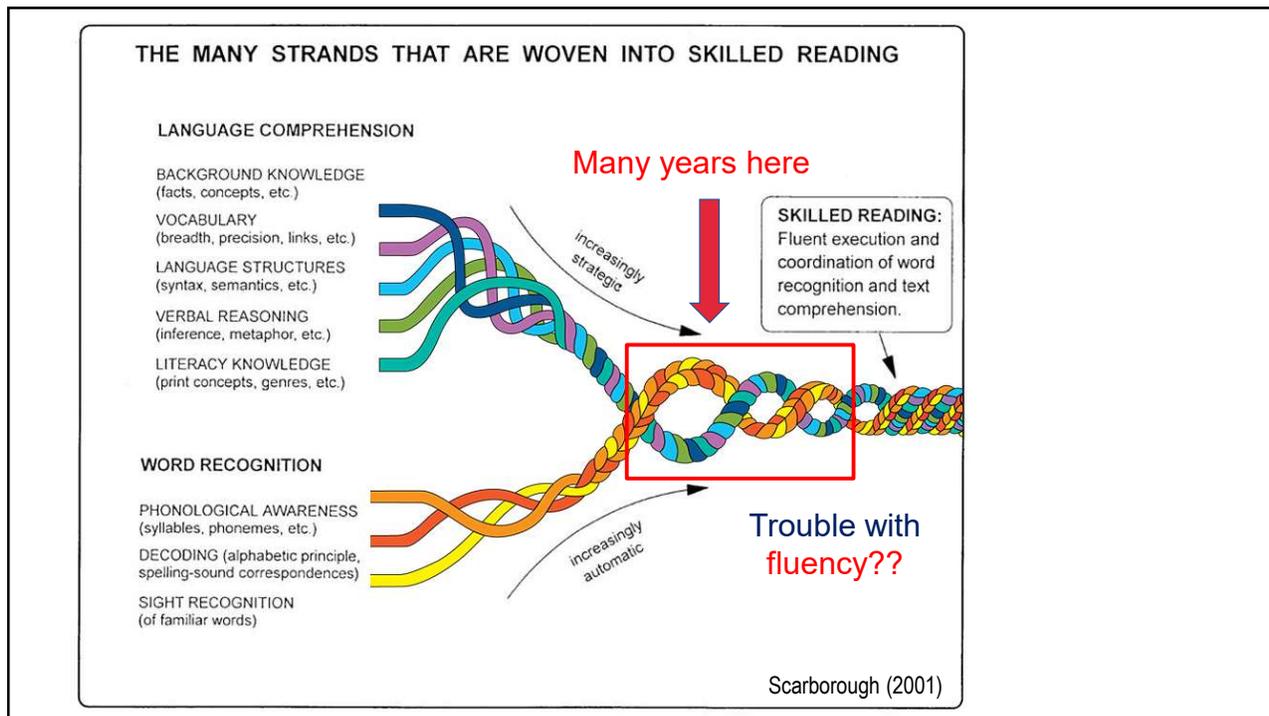
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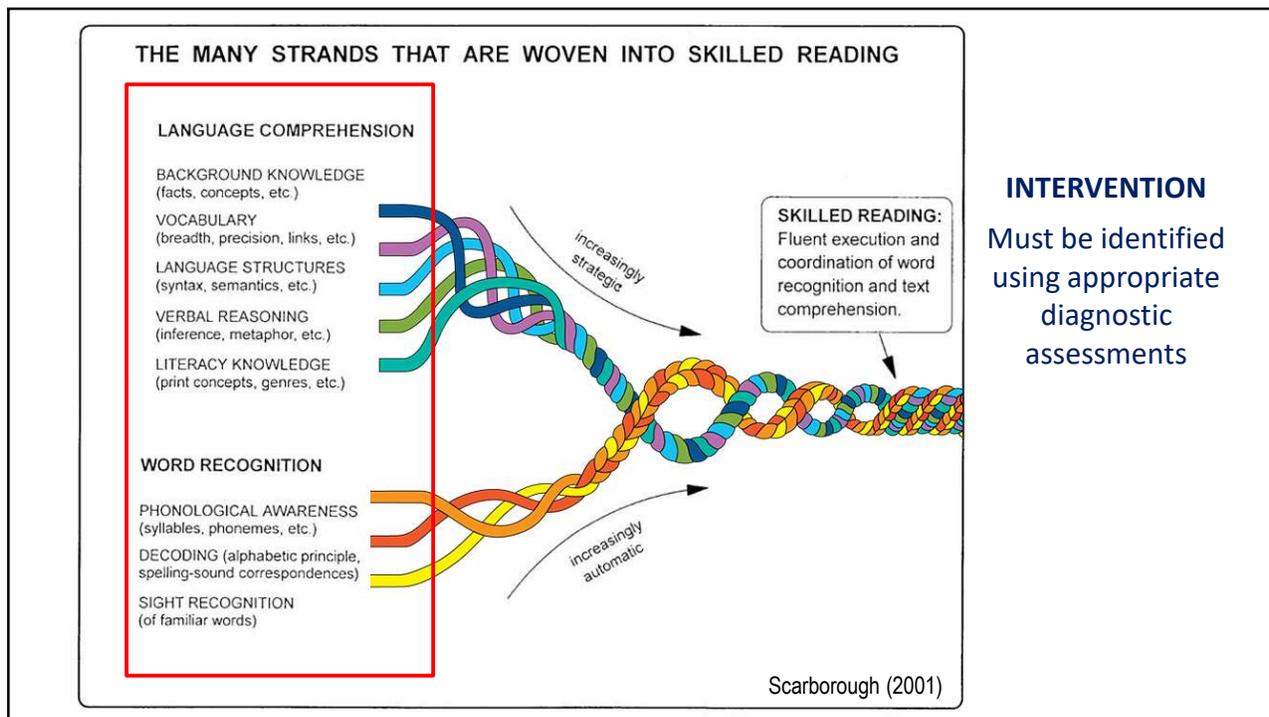
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**THANK YOU!**

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