

IDENTIFYING THE LANGUAGE SKILLS THAT ENABLE CHILDREN TO SUCCEED IN LEARNING TO READ



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with Sylvia Techmanski, Lina Sophie Schroeter, Kirsty Longino, Megan Bautista



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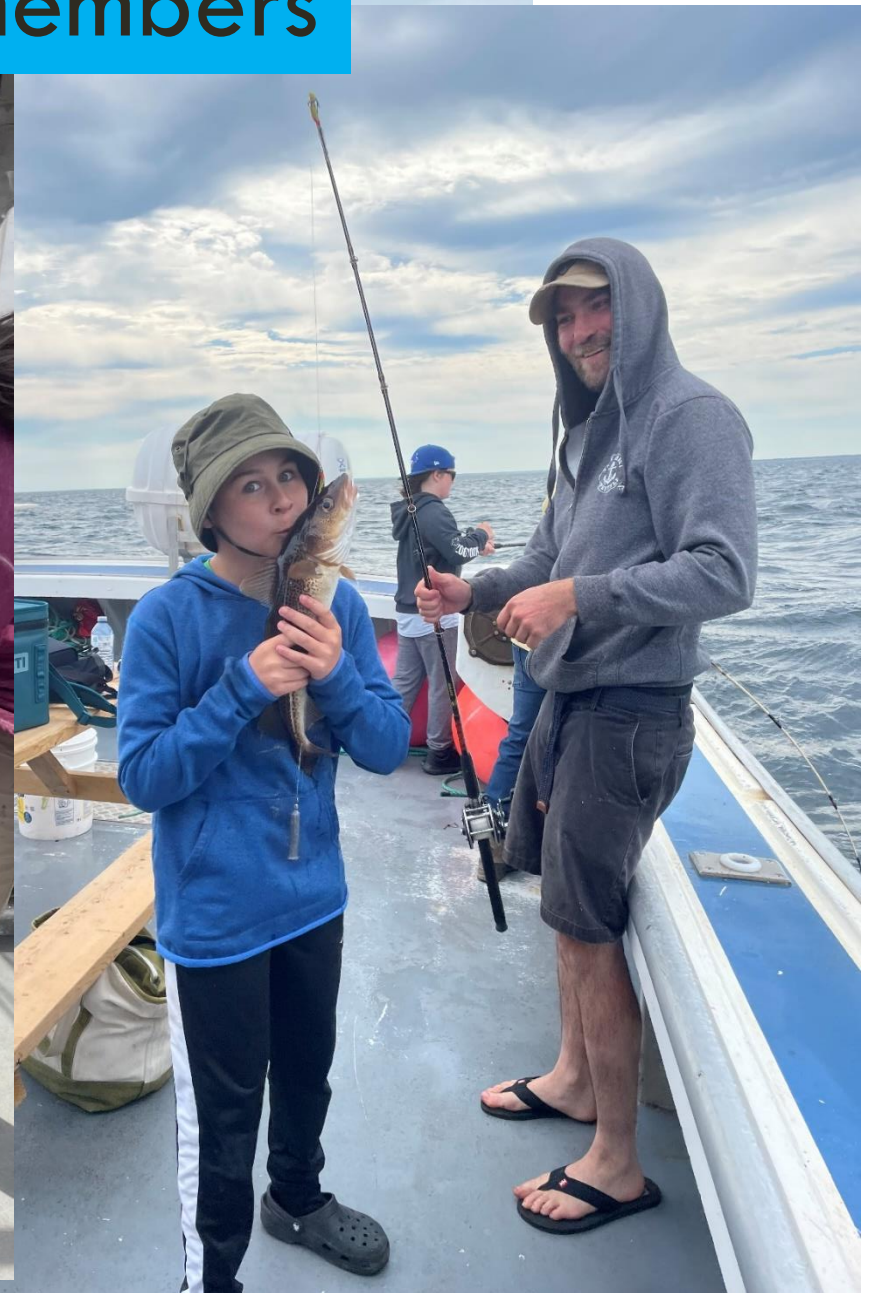


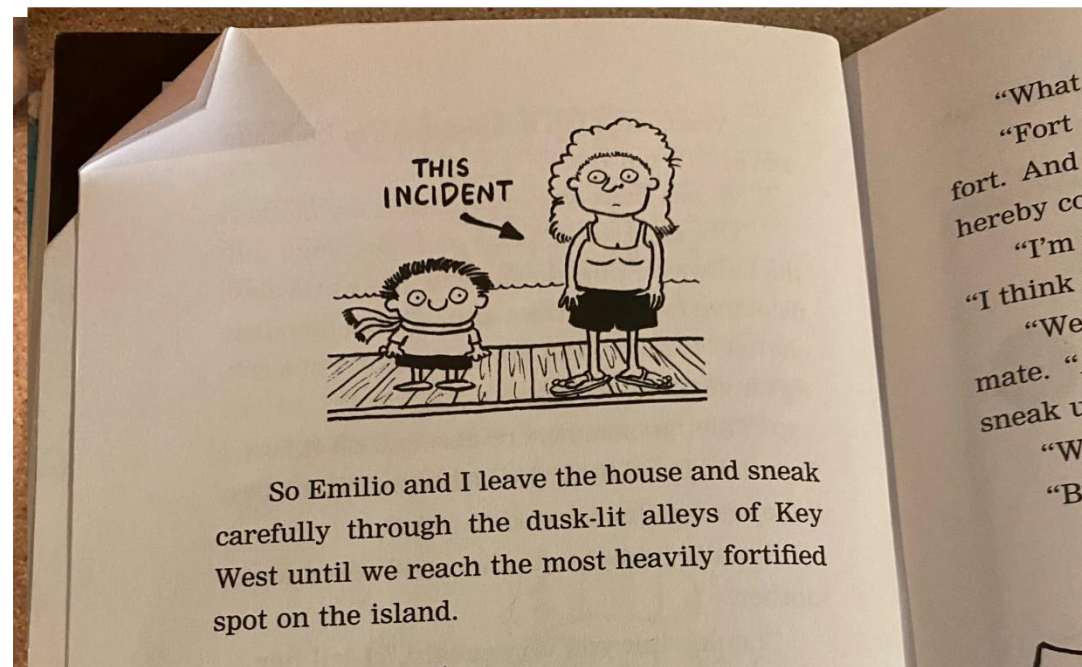
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Hons. Student



Alex Ryken,
Experimental PhD
Student

More starring cast members





The words and sentences in texts are far more complex than in oral language.

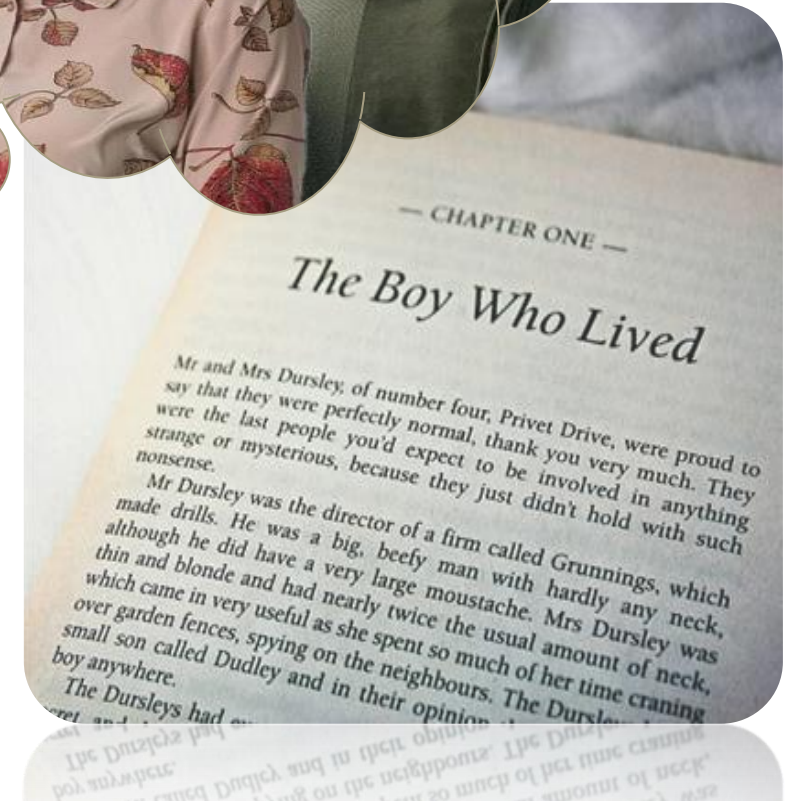


READING COMPREHENSION: THE ULTIMATE GOAL

Understanding what one reads

Enables participation in knowledge
economy and democracy and supports
full health

Illiteracy costs the world economy
1 trillion \$ annually (World Literacy Foundation, 2015)

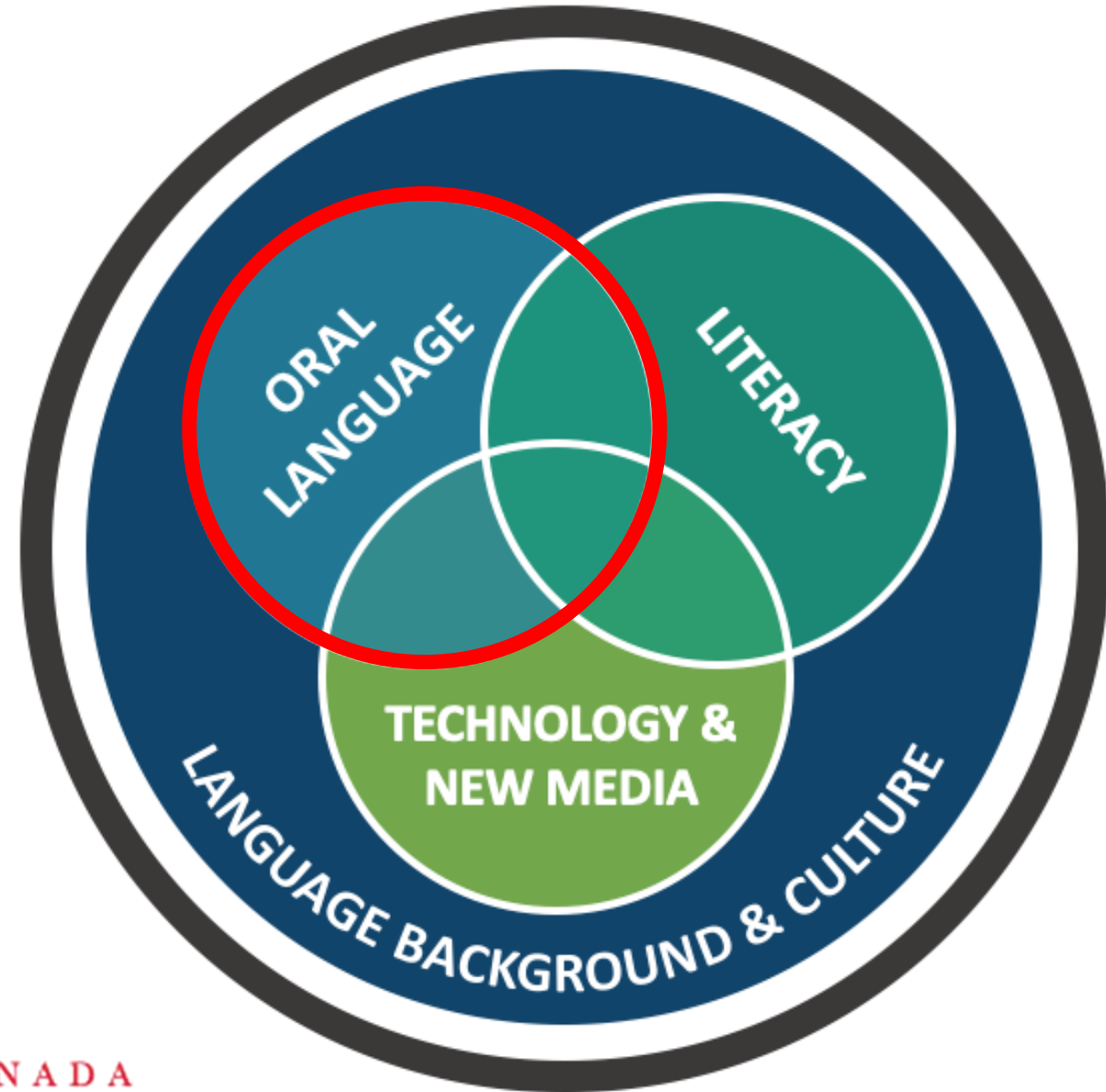


OUR IURN PROJECT

Pinpoint oral language skills that support reading comprehension

- which skills?
- for which children?

Overarching goal of ensuring that children from **all** backgrounds achieve strong reading comprehension.



SSHRC  CRSH

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NOVA SCOTIA CANADA

Education and Early Childhood Development

LEVELS WITHIN LANGUAGE

Paragraph For an evil counter-stroke, my mother used my fake death as an excuse to stick me in a room with the sniffly Emilio Empanada, lover of romance novels. And my sarcastic mother even made a sign.

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“I kept my eye on my swimming tree, the tall pine I always kept in sight, ever since I was little and first learned to swim across the lake.”

Grade 3

Sentence complexity is the single strongest determinant of text readability (Graesser et al., 2011)

LEVELS WITHIN LANGUAGE

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Word sniffly

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Word sniffly

Morphemes sniff + ly **roots and affixes**

autodefenestrate

60% of the new words that children encounter in texts contain roots and affixes a child is likely to already know (Nagy, 1989)

LEVELS WITHIN LANGUAGE

Prosody = rhythm in language

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Word sniffly

Morphemes sniff + ly **roots and affixes** SNIFF + ly

Phonemes s n i f l ee



Alex Ryken, PhD Student

Let's eat grandma

Let's eat, grandma

OUR IURN PROJECT

THE MANY STRANDS THAT ARE WOVEN INTO SKILLED READING

LANGUAGE COMPREHENSION

SKILLED READING:
Fluent execution and
coordination of word
recognition and text
comprehension.

increasingly
strategic

increasingly
automatic

WORD RECOGNITION

Sentences

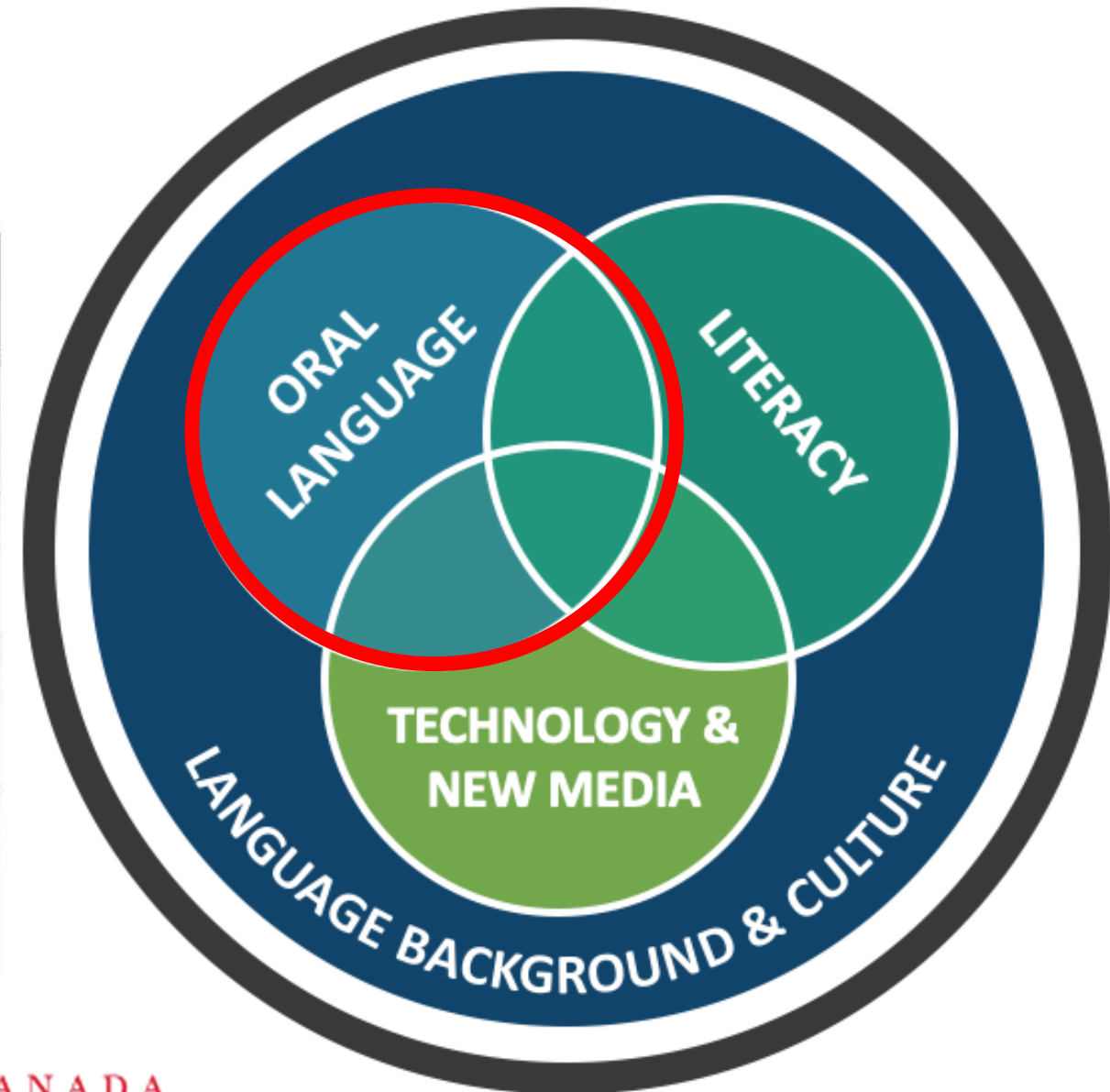
Roots and affixes

Rhythm of language

Phonological awareness

Decoding

Sight word



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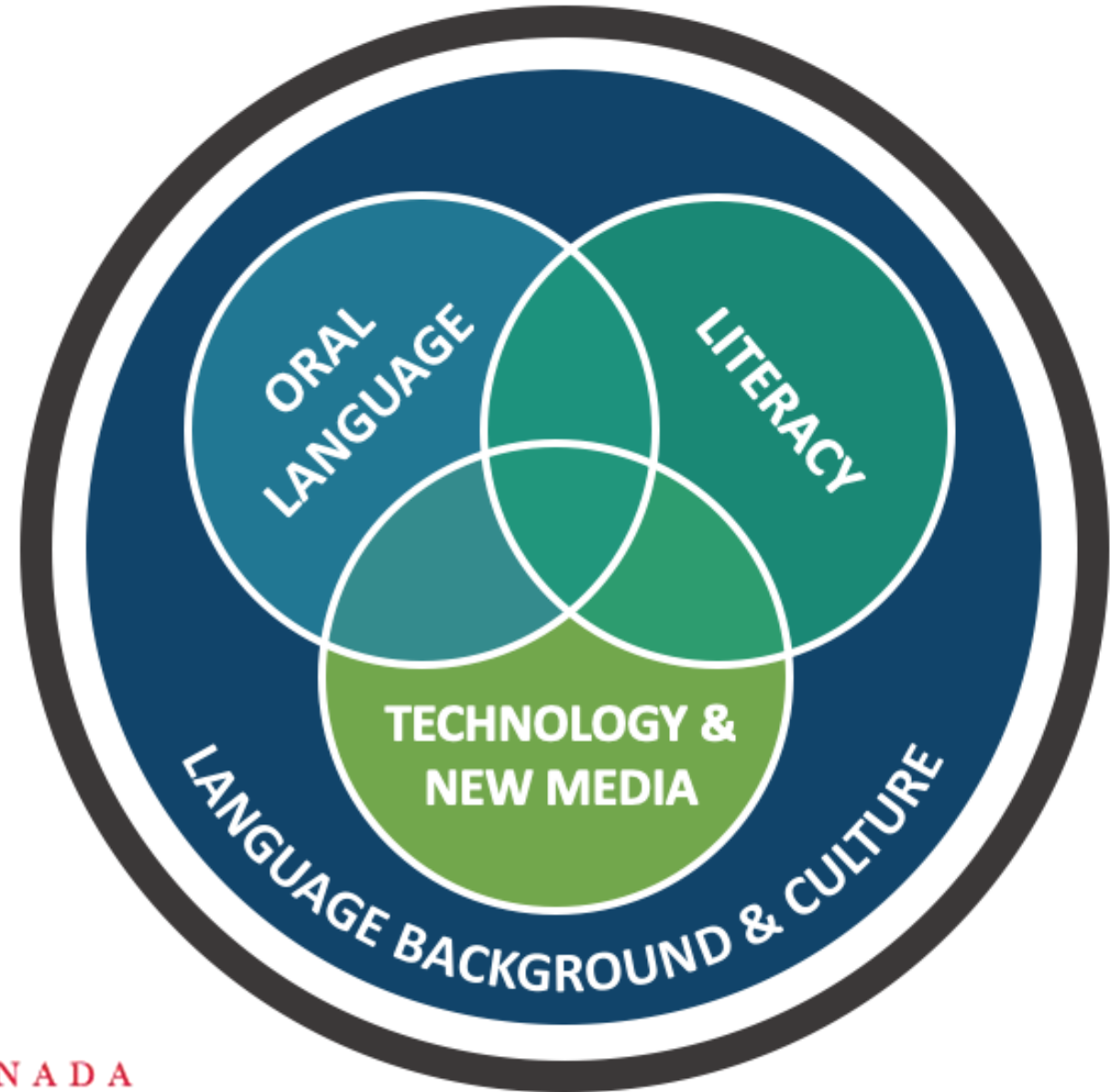
Education and Early Childhood Development

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Pinpoint oral language skills that support reading comprehension

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Overarching goal of ensuring that children from **all** backgrounds achieve strong reading comprehension.





Schools
Stef Hartlin,
Lab Manager



Halifax
Regional Centre for Education



South Shore
Regional Centre for Education

	Grade 4	Grade 5	Grade 6
Year	2022	2023	2024
# Students	157	244	231
Notes			Provincial assessment data for 217

ENSURING THAT CHILDREN FROM ALL BACKGROUNDS ACHIEVE STRONG READING COMPREHENSION

The Delmore "Buddy" Daye Learning Institute

- Sylvia Paris & George Frempong

Imhotep's Legacy Academy

- Sidney Idemudia & Wanda Colley

Statistics Canada census data

Dr. Patrick Kakembo

Halifax Regional Centre for Education

Population representative sample

12 children whose parents identified them as African Nova Scotian

12 children whose parents identified as ethnicity as Black (and not ANS)



Adena Cox, MA
in School Psychology at MSVU



Delmore "Buddy" Daye
Learning Institute
Excellence in Africentric Education



Statistics
Canada

Statistique
Canada



Halifax

Regional Centre for Education



South Shore

Regional Centre for Education

PARTICIPANTS

18 schools across HRCE and SSRCE

At Grade 1, children were average age of 6 years, 8 months

- 86% spoke English as a first language
- Other languages included Arabic, Mandarin, Korean, Russian, Hindi, etc

PARTICIPANTS

“identify promising practices that support positive learning environments and opportunities for those experiencing economic exclusion or poverty

Range of socio-economic status

- based on parents' education level and occupation (Hollingshead, 1975)
- analyses contrasted lowest 25%, in the low to mid-range of SES, with rest of sample

example of family scored as low SES

- Guardian 1 employed as a housekeeper at a hotel and is a high school graduate
- Guardian 2 employed at a coffee shop and completed a couple of years of university.

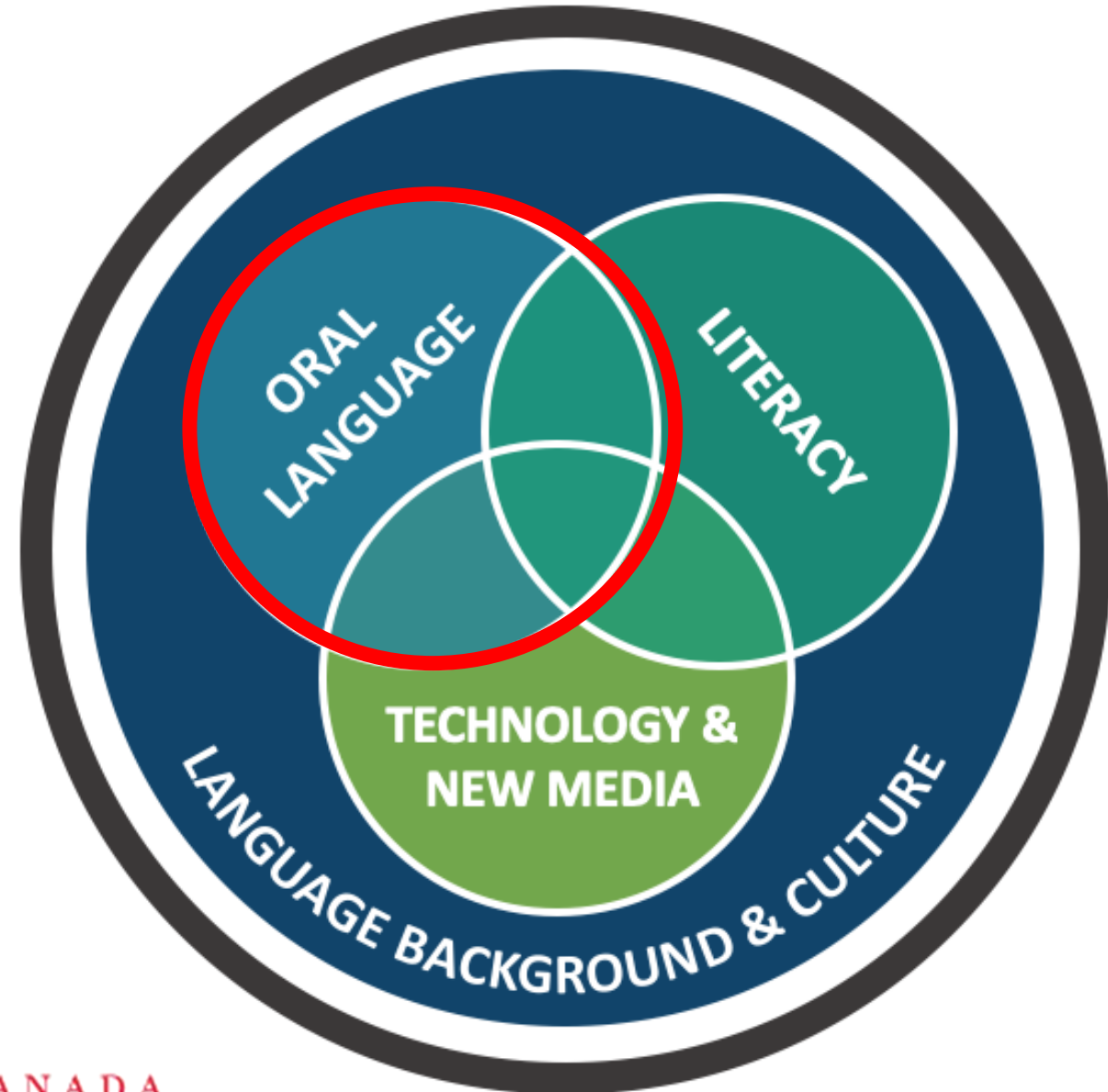
TYPICALLY DEVELOPING SAMPLE

	Standard score	Average from manual
Vocabulary	105.64 (15.21)	100 (15)
Word identification	104.18 (14.32)	100 (15)
Reading comprehension	98.53 (13.48)	100 (15)
Non-verbal ability	48.36 (7.43)	50 (10)

METHODS

Measuring the oral language pieces

- Phonological awareness
- Roots and affixes
- Sentences
- Rhythm of language
- **1.5 to 2 hours per child**



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Education and Early Childhood Development

EXAMPLE OF A PHONOLOGICAL AWARENESS TASK

Say *pancake*
without *pan*

Say *snap* now say
snap without *n*

MEASURES

Syntactic awareness: children were asked to correct a jumbled sentence

e.g., What the girls are doing?

e.g., “The girl lost her money who lives across the road.”

Reading comprehension: children read passages and asked to complete a missing word

e.g., “When the bottlenose dolphin is racing, it arches its back as it leaves the water. It may curve to a height at least twice its own length before striking the _____ again.”

water, sea, surface, surf.

EXAMPLE OF A SENTENCES TASK

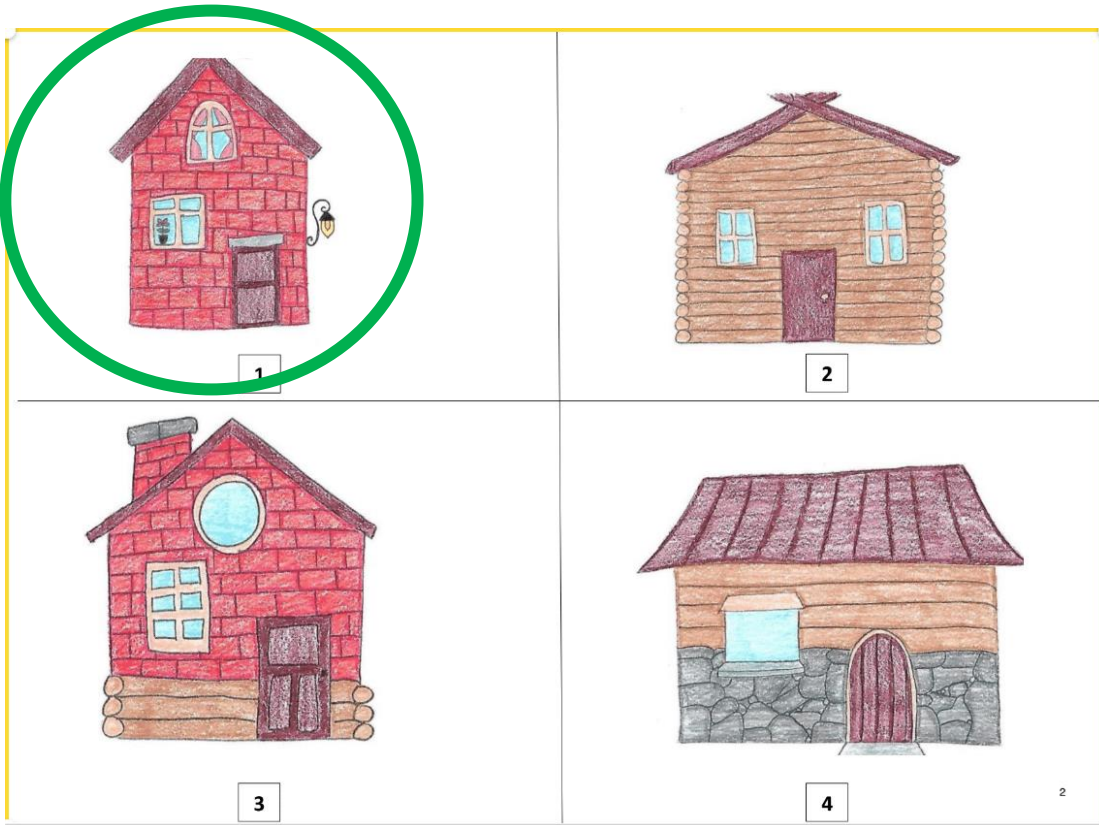
Children are asked to correct a jumbled sentence

e.g., “What the girls are doing?”

e.g., “The girl lost her money who lives across the road.”

EXAMPLE OF A ROOTS AND AFFIXES TASK

“Find the nonwoody cottage”



Driver. Children are too young to ____

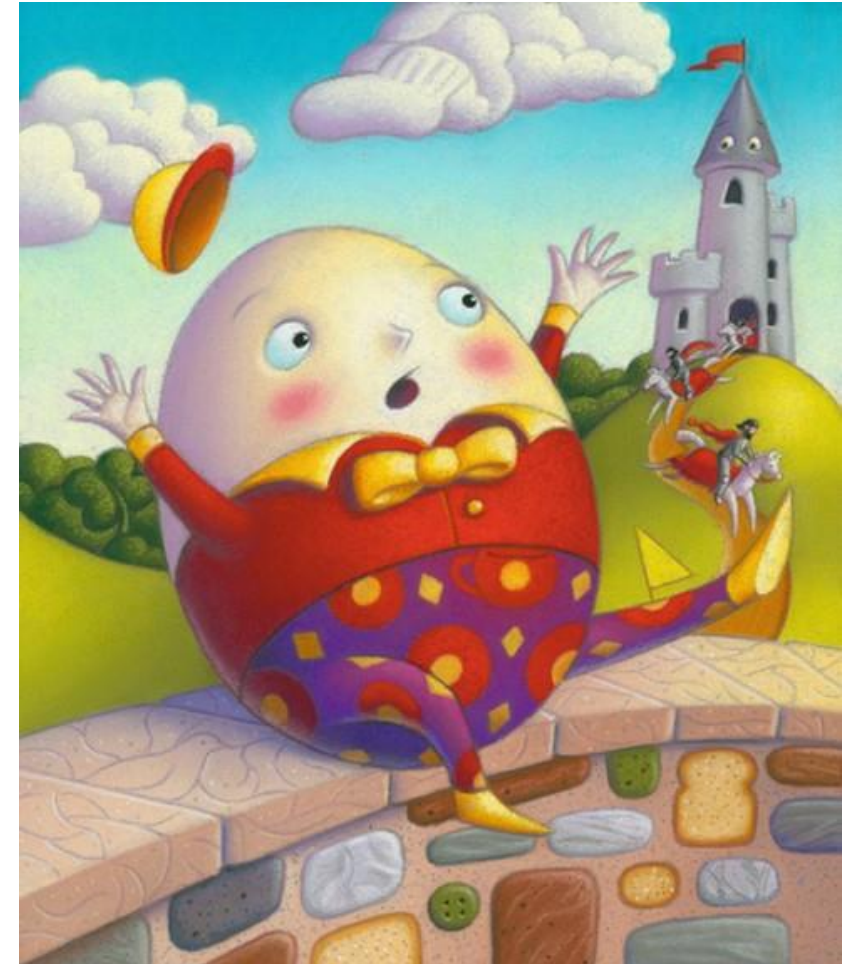
EXAMPLE OF A RHYTHM OF LANGUAGE TASK



Which “dee-dee” phrase matches **Humpty Dumpty**?

DEE = syllable with strong stress

dee = syllable with weak stress





MEASURES OF READING

Word Reading

- TOWRE
- Word Identification (WRMT)

Reading Comprehension

- Woodcock Passage Comprehension (Grade 1; Fill in the blank)
- Gates-MacGinitie Reading Test (Grade 2, 4 and 6; multiple choice questions)

Grade 6 Provincial Assessment Data



ADDITIONAL MEASURES

Vocabulary

- PPVT-5 (Match word to picture)

Nonverbal Ability

- WASI Matrix Reasoning (Pattern matching)

SES

- Hollingshead (Parent/guardian occupation and education)

WHAT WE FOUND

Grade 1 skills



Grade 1 reading

Grade 1 skills	Word Reading		Reading Comprehension	
Early reading	Grade 1		Grade 1	
Phonological Awareness	14%		12%	
Roots and Affixes	2%		2%	
Sentences	3%		3%	
Rhythm of Language	9%		7%	

Similar results for children from low SES backgrounds

Note: Contributions are beyond Grade 1 Vocabulary, Nonverbal Reasoning, and SES

WHAT WE FOUND

Grade 1 skills



Grade 6 reading

Grade 1 skills WORD READING	Word Reading		Reading Comprehension	
Later reading	Grade 1	Grade 6	Grade 1	Grade 6
Phonological Awareness	14%	3%	12%	
Roots and Affixes	2%	3%	2%	
Sentences	3%	4%	3%	
Rhythm of Language	9%	4%	7%	

Note: Contributions are beyond Grade 1 Vocabulary, Nonverbal Reasoning, and SES

WHAT WE FOUND

Grade 1 skills



Grade 6 reading

Grade 1 skills Reading comprehension	Word Reading		Reading Comprehension	
Later reading	Grade 1	Grade 6	Grade 1	Grade 6
Phonological Awareness	14%	3%	12%	7%
Roots and Affixes	2%	3%	2%	1%
Sentences	3%	4%	3%	9%
Rhythm of Language	9%	4%	7%	11%

Note: Contributions are beyond Grade 1 Vocabulary, Nonverbal Reasoning, and SES

WHAT WE FOUND

Grade 1 skills



Grade 6 reading

Grade 1 skills	Word Reading		Reading Comprehension		
	Grade 1	Grade 6	Grade 1	Grade 6	Grade 6 Prov Ass't
Phonological Awareness	14%	3%	12%	7%	9%
Roots and Affixes	2%	3%	2%	1%	8%
Sentences	3%	4%	3%	9%	14%
Rhythm of Language	9%	4%	7%	11%	11%

Note: Contributions are beyond Grade 1 Vocabulary, Nonverbal Reasoning, and SES

WHAT WE FOUND

Grade 1 skills

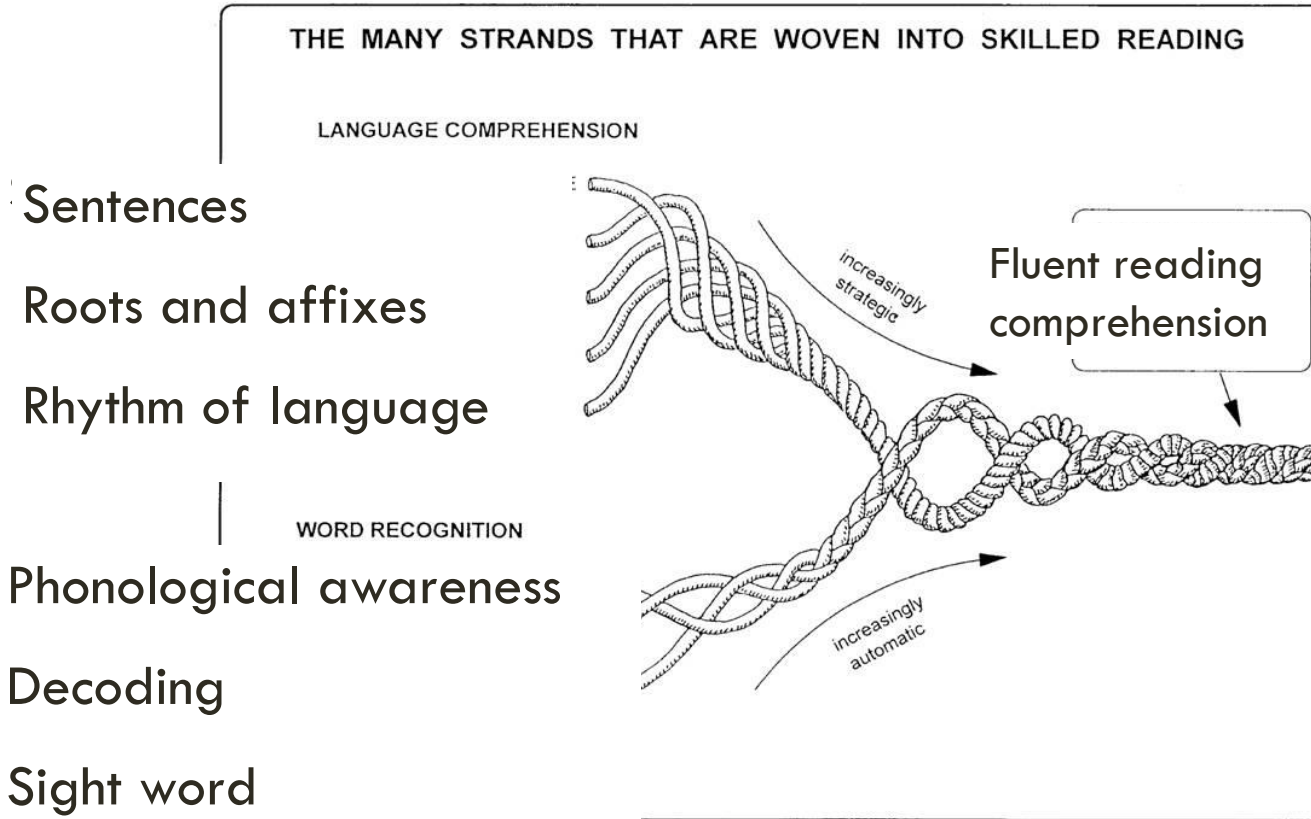


Grade 6 reading

Grade 1 skills	Grade 6 Prov. Literacy Assessment	
	Low	Mid and High
Phonological Awareness	28%	5%
Roots and Affixes	15%	7%
Sentences	16%	8%
Rhythm of Language	22%	10%

Note: Contributions are beyond Grade 1 Vocabulary, Nonverbal Reasoning, and SES

TAKE AWAY RESULTS



Each of these skills is relevant to children's reading

Phonological awareness = largest contributor to early reading and remains so to Grade 6

Rhythm and sentences key to Grade 6 reading comprehension

All aspects of language contribute to Grade 6 word reading

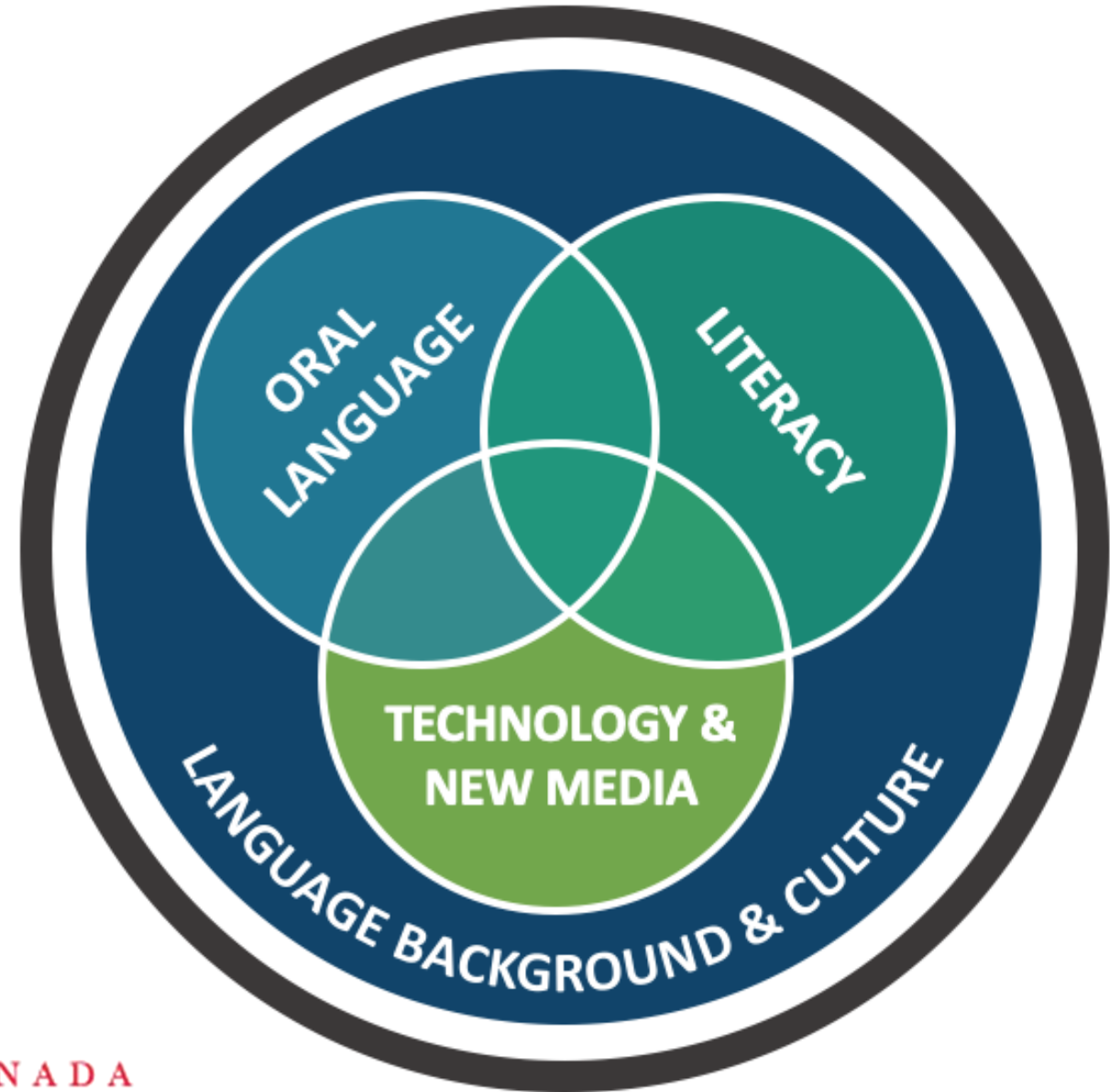
All elements, particularly phonology, key for children

OUR IURN PROJECT

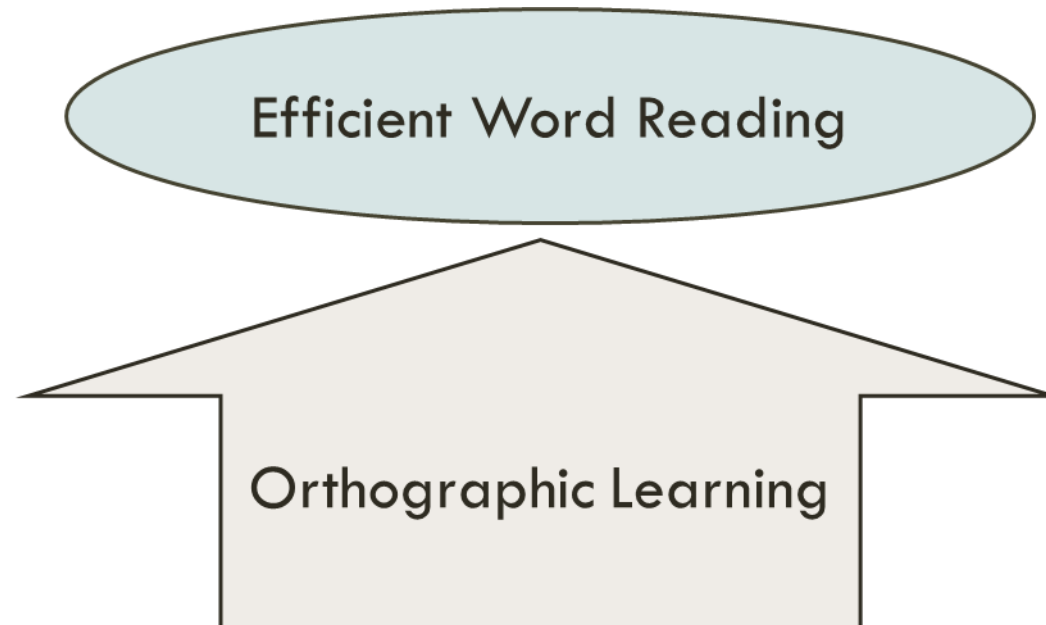
Pinpoint oral language skills that support reading comprehension

- which skills?
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THE POWER OF CHILDREN'S LEARNING IN THEIR READING



THE POWER OF CHILDREN'S LEARNING IN THEIR READING



Efficient Word Reading

The diagram consists of a light blue oval at the top containing the text 'Efficient Word Reading'. Below this oval is a large, light beige arrow pointing upwards. Inside the arrow is the text 'Orthographic Learning'. To the left of the arrow, there is explanatory text: 'The process through which children acquire fluent access to words in the mind' and 'Or engage in **orthographic mapping**'. The arrow's shape suggests that orthographic learning leads to efficient word reading.

Orthographic Learning

The process through which children acquire
fluent access to words in the mind

Or engage in **orthographic mapping**

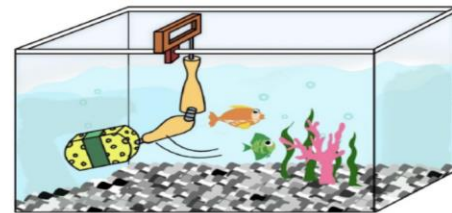
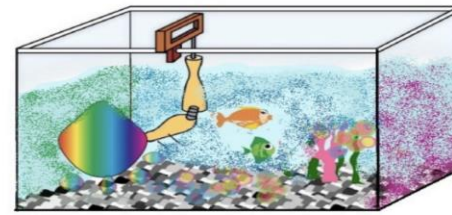
feep

veap

feap

veep

Ben's fish tank is dirty. Ben picks up the veap. The veap is used to clean fish tanks. Ben puts the veap in the fish tank. The veap cleans Ben's fish tank.



PARTICIPANTS TO DATE

18 schools in HRCE

326 children whose parents have agreed for them to participate

206 have completed some or all of the activities so far!

And we have strong information on ethnicity, language background and socio-economic status

THANK YOU!

Questions?