Cognitive and contextual factors that support the development of literacy skills

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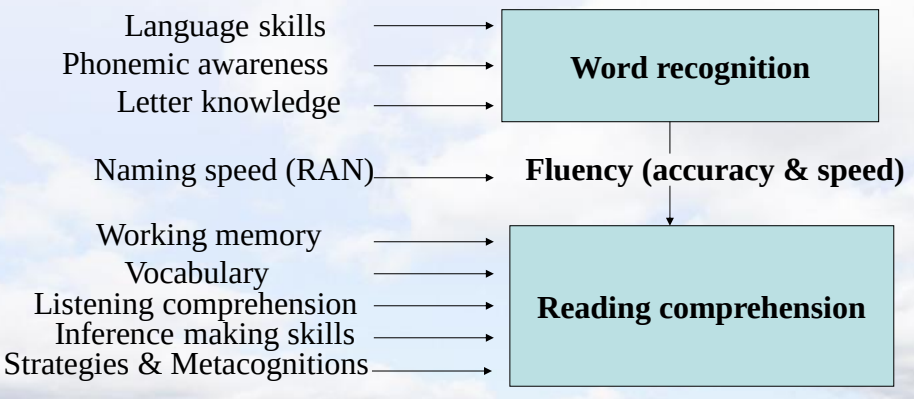
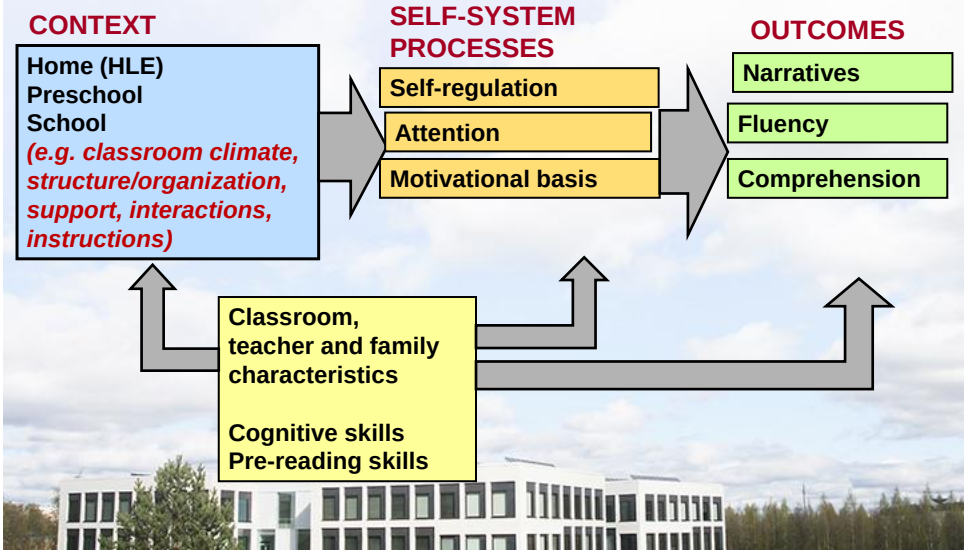
The cognitive antecedents and pathways of reading acquisition in previous studies



Does this tell the whole story?

(Lerkkanen, 2004)

Theoretical assumptions



Four longitudinal studies

	Cyprus	Estonia	Portugal	Finland
Age group	Grades 1-2	Grades 1-3	Preschools	Kindergarten – Grades 1-4
Number of children	286	775	153	515
Measures	• RAN • PA • Orthographic processing • Working memory • Processing speed • Attention • Motor and automaticity skills • Fluency • Word reading	• LC • PA • Self-regulation: - Planning skills - Task persistence • Fluency • Comprehension	• CLASS obs • PPVT • Self-regulation • Narrative complexity: - Elments - Sequence - Syntax - Decontextualized language	• CLASS obs • Pre-literacy skills • Fluency • Comprehension

The effect of the language

(Seymour, Aro, & Erskine, 2003, BJP)

The early phases of learning to read are considerably influenced by the orthography of the language the child is exposed to:

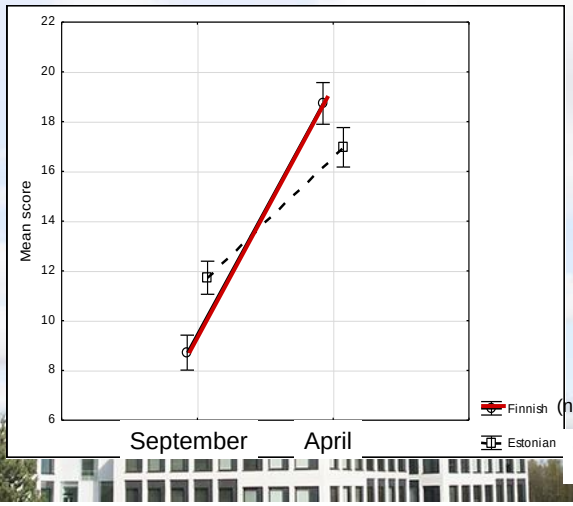
- → Syllabic complexity and the orthographic depth of a language will have strong effects on word reading skill during the phase of foundation literacy processes.
- → Learning to read is much easier and faster process in shallow orthographies.

Table 1. Hypothetical classification of participating languages relative to the dimensions of syllabic complexity (simple, complex) and orthographic depth (shallow to deep)

		Orthographic depth				
		Shallow				Deep
Syllabic structure	Simple	Finnish	Greek Italian Spanish	Portuguese	French	
	Complex		German Norwegian Icelandic	Dutch Swedish	Danish	English

The development of word reading fluency at Grade 1 in two transparent orthographies (see Finnish and Estonian) might still differ

(Soodla, Lerkkanen, Niemi, Kikas, Silinskas, & Nurmi, 2015, Learning & Instruction)



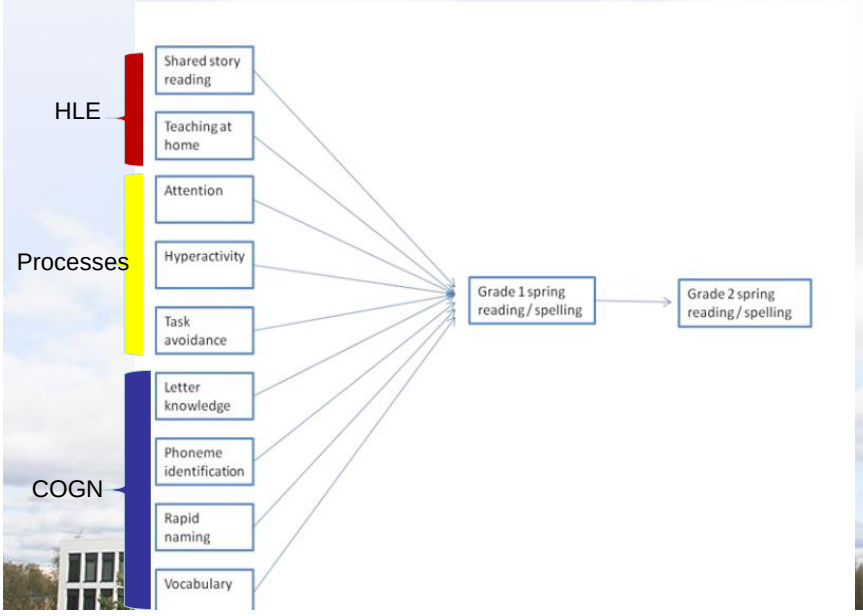
Timothy Papadopoulos et al.

Both concurrent and longitudinal analyses converge on the finding that **RAN is a unique predictor of oral reading fluency**.

Comparisons between the langauges are needed.

What can be done if the child is a slow reader?

Torppa, M., Parrila, R., Niemi, P., Poikkeus, A.-M., Lerkkanen, M.-K., & Nurmi, J.-E. 2013. The Double Deficit Hypothesis in the Transparent Finnish Orthography: a Longitudinal Study from Kindergarten to Grade 2. Reading and Writing: An Interdisciplinary Journal, 26, 1353-1380.



→ *Poor letter knowledge and vocabulary, task avoidance (self-regulation), attention difficulties, and lack of teaching at home were additional risk factors for reading and spelling, but their impact varied across the groups.*

Table 3

Descriptive Statistics and Pairwise Bonferroni Corrected Group Comparisons of the DDH Groups in RAN, PA, Spelling Accuracy and Reading Fluency

	Double deficit		RAN deficit		PA deficit		Double asset	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
RAN Objects K	101.94^{3,4}	15.39	99.34^{3,4}	14.41	69.24^{1,2}	9.99	67.74^{1,2}	10.05
Phonological awareness K	5.42^{2,4}	1.59	9.25^{1,3}	0.81	5.79^{2,4}	1.55	9.22^{1,3}	0.83
Word reading fluency G1	10.66^{2,3,4}	5.66	13.70^{1,4}	5.70	13.22^{1,4}	6.72	15.97^{1,2,3}	6.91
Word reading fluency G2	17.86^{3,4}	6.72	20.13^{4}	5.26	21.58^{1,4}	6.89	22.14^{1,2,3}	6.68
Pseudoword Spelling G1	3.07^{2,4}	2.54	4.80^{1,3}	2.23	3.39^{2,4}	2.28	5.07^{1,3}	2.13
Pseudoword Spelling G2	5.12^{2,4}	2.43	6.61^{1,3}	1.38	5.88^{2,4}	1.99	6.67^{1,3}	1.47
Vocabulary K	17.35^{2,4}	3.83	19.02^{1}	3.58	18.32^{4}	3.60	19.67^{1,3}	3.05
Letter knowledge K	14.00^{2,4}	7.24	20.85^{1,3}	5.69	15.87^{2,4}	7.22	21.87^{1,3}	5.89
Task avoidance K	15.53^{2,4}	5.54	13.57^{1,4}	5.18	14.55^{4}	5.14	12.08^{1,2,3}	4.89
HLE: Teaching K	2.44	0.79	2.43	0.81	2.50	0.82	2.50	0.82
HLE: Shared reading K	2.79	1.17	2.73	1.04	2.91	1.21	2.76	1.16
Attention K	8.31^{2,3,4}	4.99	6.21^{1,4}	4.13	6.34^{1,4}	3.78	5.11^{1,2,3}	3.16
Hyperactivity K	7.23^{3,4}	3.77	6.12	3.98	5.99^{1,4}	3.41	5.26^{1,3}	2.87

Carolina Guedes et al.:

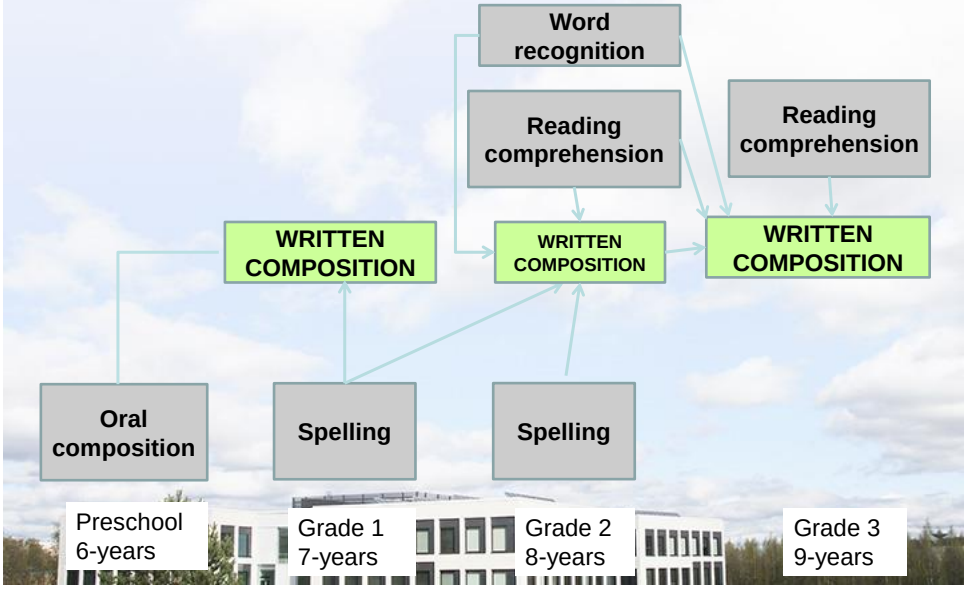
Narratives were predicted by vocabulary, self-regulation, and instructional support.

Closer look to the cathegories, for example the quality of the coherence of the narratives differ.

How the narratives might predict written composition?

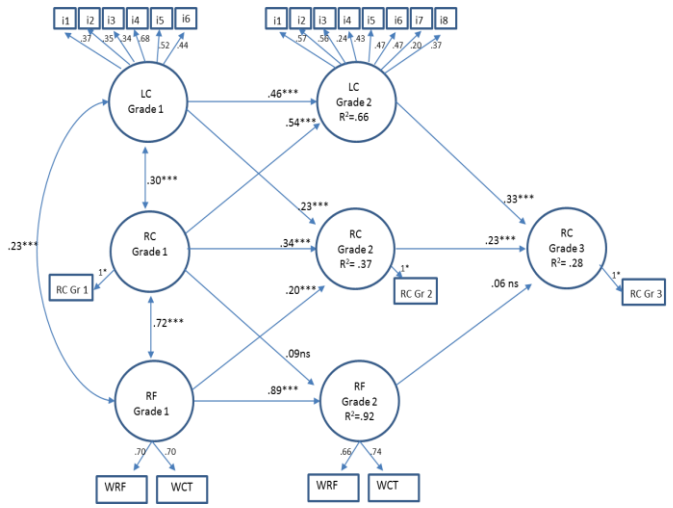
Precursors for written composition

(Mäki, 2002)



See also Torppa, M., Georgiou, G. K., Lerkkanen, M.-K., Niemi, P., Poikkeus, A.-M., & Nurmi, J.-E. (in press). Examining the simple view of reading in a transparent orthography: A longitudinal study from kindergarten to grade 3. Merrill-Palmer Quarterly.

→ *Listening comprehension predicting reading comperhension.*



Mairi Männämaa et al.:

- **Developments in cognitive and self-regulatory processes do not always parallel each other and therefore, the associations between cognitive and behavioral aspects of self-regulation are changing in time.**
- **Differences between the profile groups were greater in more complex tasks.**

Three profiles migh fit the data as well:
Low, medium, high.

More challenging tasks in transparent orthographies migh change the relation:
Fluency vs. Comprehension and Spelling?

Hirvonen, R., Georgiou, G. K., Lerkkanen, M.-K., Aunola, K., & Nurmi, J.-E. 2010. Task-focused behaviour and literacy development: a reciprocal relationship. Journal of Research in Reading, 33 (3), 302-319.

Self-regulation skills at preschool predicted reading comprehension and spelling skills but not fluency at Grade 4 in transparent Finnish language (because of lack of challenge).

Eija Pakarinen et al.:

- **Preschool process quality has an effect to children's reading skills at the beginning of the school and fluency at Grade 4.**
- **What are the mechanims: Enhancing motivation or learning startegies ?**
- **What is the effect of teacher and classroom?**
- **What kind of PD-programs are needed?**

Good readers are engaged to reading and read frequently. How teacher-child interaction promotes motivation to read? Is motivation a mediator between teacher and child's reading skills development?

Classroom Interactions and Pre-reading Development in Pre-K (Mashburn et al., 2008)

- Instructional support (CLASS)
  - Rec. language PPVT d = .17***
  - Exp. language OWLS d = .11*
  - Rhyming WJ d = 13*
  - Teacher ratings of literacy d = .20***
- Emotional support (CLASS)
  - Rec. language PPVT d = .08**

- The quality of classroom interactions can be improved through Consultation focused on:
  - *Knowledge* about high quality interactions
  - *Abilities* to observe these interactions in other teachers
  - *Abilities* to observe these interactions in themselves and reflect on their practices
- Consultation may be particularly effective in classrooms comprising **high poverty children**.


Thank you!
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