Cognitive and contextual factors that support the development of literacy skills

Discussant
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The cognitive antecedents and pathways of reading acquisition in previous studies

Language skills
Phonemic awareness
Letter knowledge

Naming speed (RAN)

Working memory
Vocabulary
Listening comprehension
Inference making skills
Strategies & Metacognitions

Word recognition
Fluency (accuracy & speed)
Reading comprehension

Does this tell the whole story?

(Lerkkanen, 2004)
Theoretical assumptions

**CONTEXT**
- Home (HLE)
- Preschool
- School (e.g. classroom climate, structure/organization, support, interactions, instructions)

**SELF-SYSTEM PROCESSES**
- Self-regulation
- Attention
- Motivational basis

**OUTCOMES**
- Narratives
- Fluency
- Comprehension

Classroom, teacher and family characteristics
Cognitive skills
Pre-reading skills

Four longitudinal studies

<table>
<thead>
<tr>
<th></th>
<th>Cyprus</th>
<th>Estonia</th>
<th>Portugal</th>
<th>Finland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group</td>
<td>Grades 1-2</td>
<td>Grades 1-3</td>
<td>Preschools</td>
<td>Kindergarten – Grades 1-4</td>
</tr>
<tr>
<td>Number of children</td>
<td>286</td>
<td>775</td>
<td>153</td>
<td>515</td>
</tr>
</tbody>
</table>
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>
<thead>
<tr>
<th>Syllabic structure</th>
<th>Orthographic depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple</td>
<td>Shallow</td>
</tr>
<tr>
<td></td>
<td>Finnish</td>
</tr>
<tr>
<td></td>
<td>Greek</td>
</tr>
<tr>
<td></td>
<td>Portuguese</td>
</tr>
<tr>
<td></td>
<td>French</td>
</tr>
<tr>
<td>Complex</td>
<td>Deep</td>
</tr>
<tr>
<td></td>
<td>German</td>
</tr>
<tr>
<td></td>
<td>Dutch</td>
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<td></td>
<td>Danish</td>
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<td></td>
<td>English</td>
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<td></td>
<td>Norwegian</td>
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<tr>
<td></td>
<td>Swedish</td>
</tr>
<tr>
<td></td>
<td>Icelandic</td>
</tr>
</tbody>
</table>

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

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)*

![Graph showing the development of word reading fluency at Grade 1 in Finnish and Estonian languages over time.](image)
Both concurrent and longitudinal analyses converge on the finding that **RAN is a unique predictor of oral reading fluency.**

**Comparisons between the languages are needed.**

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

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

<table>
<thead>
<tr>
<th></th>
<th>Double deficit</th>
<th>RAN deficit</th>
<th>PA deficit</th>
<th>Double asset</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Phonological awareness K</td>
<td>5.42</td>
<td>1.59</td>
<td>9.25</td>
<td>0.81</td>
</tr>
<tr>
<td>Word reading fluency G1</td>
<td>10.06</td>
<td>5.66</td>
<td>13.97</td>
<td>5.70</td>
</tr>
<tr>
<td>Pseudoword Spelling G1</td>
<td>3.07</td>
<td>2.54</td>
<td>4.80</td>
<td>2.23</td>
</tr>
<tr>
<td>Pseudoword Spelling G2</td>
<td>5.12</td>
<td>2.43</td>
<td>6.61</td>
<td>1.38</td>
</tr>
<tr>
<td>Vocablary K</td>
<td>17.35</td>
<td>3.63</td>
<td>19.02</td>
<td>3.58</td>
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<tr>
<td>Letter knowledge K</td>
<td>14.00</td>
<td>7.24</td>
<td>20.85</td>
<td>5.69</td>
</tr>
<tr>
<td>Task avoidance K</td>
<td>15.57</td>
<td>5.54</td>
<td>13.57</td>
<td>5.18</td>
</tr>
<tr>
<td>HLE: Teaching K</td>
<td>2.44</td>
<td>0.79</td>
<td>2.43</td>
<td>0.81</td>
</tr>
<tr>
<td>HLE: Shared reading K</td>
<td>2.79</td>
<td>1.17</td>
<td>2.73</td>
<td>1.04</td>
</tr>
<tr>
<td>Attention K</td>
<td>8.31</td>
<td>4.99</td>
<td>6.21</td>
<td>4.13</td>
</tr>
<tr>
<td>Hyperactivity K</td>
<td>7.23</td>
<td>3.77</td>
<td>6.12</td>
<td>3.98</td>
</tr>
</tbody>
</table>

Carolina Guedes et al.:

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

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

How the narratives might predict written composition?
Precursors for written composition
(Mäki, 2002)


→ Listening comprehension predicting reading comprehension.
Mairi Männämäa 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 might fit the data as well:
Low, medium, high.

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


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 mechanisms: Enhancing motivation or learning strategies?
- 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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