Reading to children aged 0–3 years and the association with home literacy environment and early language development

Astrid Wirth, Simone C. Ehmig, Lukas Heymann & Frank Niklas
Why are we interested in early reading to children?
Early reading supports children’s development in many ways

- Language input ⇒ Receptive and expressive vocabulary, letter knowledge, language comprehension
- Content of children’s books ⇒ Behavioral role models and world knowledge
- Closeness to familiar people ⇒ Secure attachment

⇒ Not only shared reading habits support children’s development, but also the surrounding factors of the Home Literacy Environment (HLE)
The Home Literacy Environment (HLE)

- Onset and frequency of reading to a child
- Number of (children’s) books at home
- Parent’s reading behavior
- Parent’s attitudes towards reading
- Frequency of library visits
- Teaching of letters by the parents
- ...
The Home Literacy Environment

Distal family characteristics
- Socio-economic status
- Migration background
- Parental education level

Proximal family characteristics
- Quantity of reading
- Quality of reading
- Parental attitudes and expectations
- Onset of reading to child

"Home Literacy Environment"

Precursor competencies
- Language
  - Language comprehension
  - Language production
  - Language memory

Academic competencies
- Reading and spelling
- Literacy
  - Narrative skills
  - Knowledge of print
  - Awareness of print

Association of distal and proximal family characteristics with precursor and academic competencies (cf. Niklas, 2015)
Early reading and the HLE as a long-term investment in children’s competencies

Good Readers Had an Early Start in Literacy Learning

PIRLS indicates two basic ways students get an early start in literacy learning:

- Having parents who often engage them in early literacy activities
- Attending preprimary education

Parents are students’ first teachers, and 39 percent of the students had parents who reported often engaging their children in early literacy activities such as reading, talking, or singing to them as well as telling them stories and teaching them to write alphabet letters. These students had higher reading achievement than students whose parents engaged them less frequently in early literacy activities.

Low performance in literacy – A “renewable” problem in most European countries

Percentage of low performers in reading:
- Adults aged 16-65 (PIAAC 2013; < Competence level 2)
- Adolescents aged 15 (PISA 2015; < Competence level 2)
- Children in 4th year of schooling (PIRLS 2017; < Competence level 3)

<table>
<thead>
<tr>
<th>Country</th>
<th>Adults 16-65</th>
<th>Adolescents 15</th>
<th>Children 4th year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>15.0</td>
<td>14.4</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>17.5</td>
<td>16.2</td>
<td>18.9</td>
</tr>
<tr>
<td>Finland</td>
<td>10.6</td>
<td>11.1</td>
<td>8.7</td>
</tr>
<tr>
<td>Netherlands</td>
<td>11.7</td>
<td>12.3</td>
<td>18.1</td>
</tr>
<tr>
<td>Sweden</td>
<td>13.3</td>
<td>12.2</td>
<td>18.4</td>
</tr>
<tr>
<td>Norway</td>
<td>12.3</td>
<td>14.9</td>
<td>10.2</td>
</tr>
<tr>
<td>England</td>
<td>16.4</td>
<td>17.9</td>
<td>14.5</td>
</tr>
</tbody>
</table>
The present study
Aim of the present study

Previous studies emphasized the importance of an early onset of reading.\(^9\)
The present study focuses on the situation in families:

- When are parents beginning to read to their children?
- How do they differ from parents who do not (yet) read to their children?
- How is an early onset of reading associated with children’s linguistic abilities?
- What can we do to support parents’ early reading?
Background of the present study – The reading aloud studies

The present research is part of a series of studies on reading aloud,

- the German Reading Foundation (*Stiftung Lesen*) is providing annually year since 2007,
- focusing specific research questions of reading aloud in Germany,
- connected to the *German Reading Aloud Day* (3rd Friday in November) – 2018 more than 250.000 individuals were involved, reading aloud and listening.
- The studies usually are based on structured interviews with representative samples of parents and / or children in Germany.
- Responsible for conception, operationalization and analysis is the *Institute for Research on Reading and Media*, which is part of the German Reading Foundation.

Stiftung Lesen, based in Mainz, Germany, is a foundation that is committed to reading and literacy promotion. We believe that reading is a prerequisite for full participation in today's media-led and culturally diverse society. Reading is fundamental to human development, it enables people to live full and meaningful lives and contribute towards the enrichment of the communities in which we all live. → [www.stiftunglesen.de](http://www.stiftunglesen.de)
The reading aloud studies of Stiftung Lesen
2007 – 2019

2007 - Reading aloud in the family context
2008 – Children’s perceptions on reading aloud
2009 - Why fathers aren’t reading to their children
2010 - Shared reading habits in families with migration background
2011 – The importance of shared reading for children’s later development
2012 - Reading aloud with digital media
2013 - Reading aloud in the family context (changes since 2007)
2014 – Reading aloud and families attachment
2015 – Reading aloud and children’s development of personality and social competencies
2016 – Reading aloud – what children desire
2017 – Early reading to children
2018 – Reading aloud on a regular basis facilitates children’s learning to read
2019 – The situation of reading aloud in Germany – update and changes since 2013
Methods

- Representative sample of $N = 523$ parents with children between 3 months and 39 months of age

- Quantitative assessment: structured face-to-face interviews with either $N = 128$ fathers (24.5 %) or $N = 395$ mothers

- Mean age of children: 21.6 months ($SD = 12.24$)

- Sex of children: 49.9 % boys, 50.1 % girls
Participants – further demographics of our sample

<table>
<thead>
<tr>
<th>Marital status</th>
<th>N</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>married and living together</td>
<td>363</td>
<td>69.4</td>
</tr>
<tr>
<td>unmarried and living together</td>
<td>61</td>
<td>11.7</td>
</tr>
<tr>
<td>living apart or single parent</td>
<td>99</td>
<td>18.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Highest level of education (mothers / fathers)</th>
<th>N</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>low level of education</td>
<td>128 / 138</td>
<td>28.3 / 28.1</td>
</tr>
<tr>
<td>Intermediate level of education</td>
<td>209 / 185</td>
<td>39.9 / 35.3</td>
</tr>
<tr>
<td>high level of education</td>
<td>166 / 191</td>
<td>31.8 / 36.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Net household income</th>
<th>N</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>781 € to 2.300 € per month</td>
<td>212</td>
<td>40.5</td>
</tr>
<tr>
<td>2.301 € to 3.419 € and over per month</td>
<td>311</td>
<td>59.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Migration background</th>
<th>N</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes, study child or at least one parent</td>
<td>185</td>
<td>35.4</td>
</tr>
<tr>
<td>neither child nor parents</td>
<td>338</td>
<td>64.6</td>
</tr>
</tbody>
</table>
Measures

- **HLE questionnaire (cf. Niklas, 2015)**
  9 items, max. 36 points, $M = 18.15$ ($SD = 6.16$), Cronbach‘s $\alpha = .79$

- **Linguistic ability questionnaires SBE-2-KT und SBE-3-KT**
  (Suchodoletz, Sachse, Kademann & Tippelt, 2012)
  58 / 172 items and max. points, $M = 29.85$ ($SD = 7.50$) / $M = 114.46$ ($SD = 15.92$), Cronbach‘s $\alpha = .80 / .94$

- **Further questions regarding**
  - parental attitudes towards reading,
  - onset,
  - frequency and quality of reading,
  - everyday behaviour,
  - demographic background
Results

When do parents begin to read to their children?

Percentage of parents reading to their children (n=413)

<table>
<thead>
<tr>
<th>Time in months (quarters)</th>
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<tr>
<td>1-3</td>
<td>13.1%</td>
</tr>
<tr>
<td>4-6</td>
<td>33.7%</td>
</tr>
<tr>
<td>7-9</td>
<td>7.3%</td>
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<tr>
<td>10-12</td>
<td>21.8%</td>
</tr>
<tr>
<td>13-15</td>
<td>7%</td>
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<td>16-18</td>
<td>5.8%</td>
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<td>19-21</td>
<td>3.9%</td>
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<td>22-24</td>
<td>4.8%</td>
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The educational level of the parents influences whether they read to their children early on

Families with

- **higher level of education (n=195)**
  - several times a day: 12
  - once a day: 34
  - several times a week: 31
  - once a week: 6
  - less than that: 17

- **moderate level of education (n=186)**
  - several times a day: 11
  - once a day: 31
  - several times a week: 32
  - once a week: 4
  - less than that: 21

- **lower level of education (n=141)**
  - several times a day: 6
  - once a day: 23
  - several times a week: 36
  - once a week: 8
  - less than that: 4
  - never: 23

... who read aloud ...
- several times a day
- once a day
- several times a week
- once a week
- less than that
- never

All families (n=523)

- several times a day: 10
- once a day: 30
- several times a week: 33
- once a week: 6
- less than that: 2
- never: 20

All parents n=523, in %

“The questions that follow concerns shared reading. By shared reading, we mean looking at picture books together, including books with few pictures or books made of different fabrics, like wood or plastic. How often do you read to your child?”  “How often does your partner read to your child?”

Source: German Reading Foundation | 2017 Reading Aloud Study
Comparing reading and non-reading parents

- Matching of two subsamples ($N = 89$, respectively) of reading and non-reading parents with regard to their children’s age:
  
  \[
  M_{\text{readers}} = 13.69, \quad SD_{\text{readers}} = 10.6 \\
  M_{\text{non-readers}} = 13.69, \quad Sd_{\text{non-readers}} = 10.6
  \]

- Children‘s sex was approximately evenly distributed with:
  
  $N = 49$ boys (55.1 %) and $N = 40$ girls (44.9 %)
Comparing reading and non-reading parents

Reading and non-reading parents differed significantly with regard to:

- Highest level of education, $t(172) = 2.43$, $p < .05$, $d = .37$
- Net household income, $t(176) = 2.60$, $p > .05$, $d = .39$
- Migration status, $\chi^2(1, n = 178) = 3.96$, $p < .05$

- Non-reading parents estimate the influence of shared reading and frequent talking to children on their later life significantly lower than reading parents, $t(176) = 5.16$, $p < .001$, $d = .77$ and $t(154) = 4.40$, $p < .001$, $d = .67$
## Everyday behavior of reading and non-reading parents

<table>
<thead>
<tr>
<th>Variables</th>
<th>M(SD) reading parents</th>
<th>M(SD) non-reading parents</th>
<th>t-value</th>
<th>df</th>
<th>Cohen's d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Showing and naming objects</td>
<td>5.61 (2.02)</td>
<td>1.74 (2.23)</td>
<td>12.12**</td>
<td>174</td>
<td>1.82</td>
</tr>
<tr>
<td>Telling made-up stories</td>
<td>1.64 (1.56)</td>
<td>0.35 (1.10)</td>
<td>6.39**</td>
<td>158</td>
<td>.96</td>
</tr>
<tr>
<td>Including the child in daily activities, e.g. cooking, cleaning or others</td>
<td>2.83 (2.93)</td>
<td>0.57 (1.75)</td>
<td>6.25**</td>
<td>144</td>
<td>.94</td>
</tr>
<tr>
<td>Making music, sing or dance</td>
<td>1.91 (2.10)</td>
<td>0.55 (1.34)</td>
<td>5.13**</td>
<td>149</td>
<td>.77</td>
</tr>
<tr>
<td>Doing something where you can get dirty</td>
<td>1.79 (1.59)</td>
<td>0.70 (1.41)</td>
<td>4.85**</td>
<td>174</td>
<td>.73</td>
</tr>
<tr>
<td>Playing at home, e.g. with puppets, toy blocks</td>
<td>4.54 (2.20)</td>
<td>3.03 (2.29)</td>
<td>4.47**</td>
<td>176</td>
<td>.67</td>
</tr>
<tr>
<td>Drawing or crafting</td>
<td>1.70 (2.01)</td>
<td>0.63 (1.18)</td>
<td>4.32**</td>
<td>142</td>
<td>.65</td>
</tr>
<tr>
<td>Playing together outside</td>
<td>4.19 (1.68)</td>
<td>3.35 (2.00)</td>
<td>3.05**</td>
<td>176</td>
<td>.46</td>
</tr>
<tr>
<td>Visiting courses, e.g. baby massages, baby swim courses</td>
<td>1.10 (1.08)</td>
<td>0.70 (0.98)</td>
<td>2.69*</td>
<td>176</td>
<td>.40</td>
</tr>
<tr>
<td>Saying rhymes, playing finger games</td>
<td>2.06 (2.03)</td>
<td>1.36 (2.29)</td>
<td>2.15*</td>
<td>176</td>
<td>.32</td>
</tr>
<tr>
<td>Watching movies, videos, series together</td>
<td>1.89 (2.32)</td>
<td>1.75 (2.72)</td>
<td>0.36</td>
<td>176</td>
<td>.05</td>
</tr>
</tbody>
</table>

*Note.** significant with $p < .01$, * significant with $p < .05$
The HLE and children’s level of language skills

- Significant association between the HLE and children’s level of linguistic abilities were found,
  \[ r(52) = .31, p < .05 \] for the SBE-2-KT (smaller children) and
  \[ r(231) = .14, p < .05 \] for the SBE-3-KT (older children)

- The frequency of reading to a child correlated significantly with children’s linguistic abilities, with
  \[ r(283) = .17, p < .05 \]
Limitations

- Associations between the HLE and children‘s level of linguistic abilities were lower than in previous studies\(^1,10\)

- Assessing children’s level of linguistic abilities in test settings would have been more expedient
What can we do to support parents’ early reading?
What can we do to support parents’ early reading?

1. Facilitate book choices
Parents with very young children need extra assistance when choosing books

Families with children who are ...

<table>
<thead>
<tr>
<th>Age</th>
<th>Very Easy</th>
<th>Sort of Easy</th>
<th>Sort of Difficult</th>
<th>Very Difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td>three years (n=119)</td>
<td>40</td>
<td>44</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>two years (n=116)</td>
<td>52</td>
<td>34</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>one year (n=101)</td>
<td>42</td>
<td>46</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>under one year (n=73)</td>
<td>51</td>
<td>25</td>
<td>21</td>
<td>4</td>
</tr>
<tr>
<td>Total (n=409)</td>
<td>46</td>
<td>38</td>
<td>14</td>
<td>2</td>
</tr>
</tbody>
</table>

Parents who read aloud (n=413) in %

“When you are choosing new books for your child, how easy or hard is it for you to make an age-appropriate choice?”
Source: German Reading Foundation | 2017 Reading Aloud Study
What can we do to support parents’ early reading?

1. Facilitate book choices
2. Gifting books
The likelihood that parents start reading aloud early on increases if they are given book presents:

Families, who were ... 

- **given a book present (n=290)**
  - several times a day: 14
  - once a day: 32
  - several times a week: 33
  - once a week: 5
  - less than that: 1
  - never: 15

- **not given a book present (n=233)**
  - several times a day: 5
  - once a day: 28
  - several times a week: 33
  - once a week: 6
  - less than that: 2
  - never: 27

- **Total (n=523)**
  - several times a day: 10
  - once a day: 30
  - several times a week: 33
  - once a week: 6
  - less than that: 2
  - never: 20

“When your first child was born, did you receive book gifts from family members, friends, or acquaintances?” | “Did you upon the birth of your child receive books from ministries or public offices, or from private companies like drugstores or diaper manufacturers, e.g., in a baby package, which you were able to register for online?”

Source: German Reading Foundation | 2017 Reading Aloud Study
Children in households with lower educational background benefit enormously from book presents

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Read Aloud</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher level of education (n=127)</td>
<td>32</td>
<td>14</td>
</tr>
<tr>
<td>Moderate level of education (n=99)</td>
<td>30</td>
<td>18</td>
</tr>
<tr>
<td>Lower level of education (n=63)</td>
<td>38</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Read Aloud</th>
<th>Frequency</th>
</tr>
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<tbody>
<tr>
<td>Several times a day</td>
<td>10</td>
</tr>
<tr>
<td>Once a day</td>
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<td>Less than that</td>
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<td>Never</td>
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**Source:** German Reading Foundation | 2017 Reading Aloud Study

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What can we do to support parents’ early reading?
1. Facilitate book choices
2. Gifting books
3. Addressing parents with a low educational background
Ideas to directly address parents with low educational backgrounds

- Promoting digital reading with e-readers or tablets

- Cooperations with selected companies, e.g. McDonalds (providing books in HappyMeals)

- Motivating and educating parents so that they can act as role models
Children like to read...and it is never to early to begin!
Literature


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