Fostering language development by content based learning in German secondary schools

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Evaluation der Sprachförderung im Fachunterricht der Sekundarstufe I im BiSS-Programm

cooperation between

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Prof. Dr. Knut Schwippert

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Structure

- Description of the Project
- Research Questions
- Testing Instrument and Evaluation Method
- Results
- Conclusion
Description of the Project
Description of the Project

- **BiSS** (Education through Language and Writing)
  - 600 participating institutions (kindergarten and schools); 104 networks
  - Promotion of language skills, linguistic assessment, reading promotion

- **EvaFa** (Fostering language development by content based learning in German secondary schools)
  - 19 schools from 3 federal states of Germany
  - Longitudinal project, mixed-methods-design
  - Offers the opportunity to investigate the language development process of the students
network coordinators

- questionnaire (n=9)
- interview (n=24 schools)
- interview (n=15 schools)
- interview (n=11 schools)
- interview (n=16 schools)
- feedback (classroom observation n=35 classes)
- feedback (classroom observation n=21 classes)
- feedback (n=11 schools)
- feedback (n=16 schools)

teachers

- questionnaire (n=9)
- interview (n=24 schools)
- interview (n=15 schools)
- interview (n=11 schools)
- interview (n=16 schools)
- feedback (classroom observation n=35 classes)
- feedback (classroom observation n=21 classes)
- feedback (n=11 schools)
- feedback (n=16 schools)

students

- questionnaire (n=34 schools)
- questionnaire (n=704 students)
- questionnaire (n=416 students)
- feedback (n=17 schools)
- final feedback

parents

- questionnaire (n=248)
- questionnaire (n=102)

quantitative
qualitative

317 students participated in both measurement times.
Research Questions
Research Questions

- How do self-perceived and measured language competencies influence the development of argumentative writing competencies?
- What influence do sociodemographic factors and multilingual education have on argumentative writing competencies?
Testing Instruments and Evaluation Method
Test Instruments

• Standardized reading accuracy and speed test (LGVT)
• General language competencies (C-Test)
• Argumentative writing task

Additional Instruments
• Mathematical competency test (DEMAT)
• Sociodemographic background variables
• Self assessment of linguistic competencies
• Language background (L1, L2)
Evaluation Method

- indicator model for school writing to measure the text quality
- text length and three different categories with subcategories:
  - overall impression
  - content development: content, text structure, style, wording
  - linguistic quality: grammar, orthography, sentence structure
- 5 point scales
- one text per category as benchmark
- two trained raters
Results
## Text Quality

<table>
<thead>
<tr>
<th>Grade</th>
<th>M(CD)</th>
<th>SD(CD)</th>
<th>M(LQ)</th>
<th>SD(LQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-6</td>
<td>2.19</td>
<td>.66</td>
<td>2.33</td>
<td>.81</td>
</tr>
<tr>
<td>7-8</td>
<td>2.23</td>
<td>.82</td>
<td>2.42</td>
<td>.9</td>
</tr>
<tr>
<td>9-10</td>
<td>2.71</td>
<td>.86</td>
<td>2.75</td>
<td>.83</td>
</tr>
</tbody>
</table>

CD: Content development  
LQ: Linguistic quality
Research Hypotheses

- Language competencies
- Language acquisition and use
- Writing competencies
- Writing competencies
Model I (language competencies) explained variance $R^2$

<table>
<thead>
<tr>
<th>grade</th>
<th>Content development</th>
<th>Linguistic quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-6</td>
<td>.262</td>
<td>.178</td>
</tr>
<tr>
<td>7-8</td>
<td>.032</td>
<td>.069</td>
</tr>
<tr>
<td>9-10</td>
<td>.074</td>
<td>.177</td>
</tr>
<tr>
<td>Overall</td>
<td>.07</td>
<td>.081</td>
</tr>
</tbody>
</table>
Model I (language competencies) content development (p<.001)

<table>
<thead>
<tr>
<th>grade</th>
<th>predictor</th>
<th>β</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-6</td>
<td>C-Test</td>
<td>1.62</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>LGVT</td>
<td>.01</td>
<td>.433</td>
</tr>
<tr>
<td>7-8</td>
<td>C-Test</td>
<td>1.96</td>
<td>.006</td>
</tr>
<tr>
<td></td>
<td>LGVT</td>
<td>.003</td>
<td>.809</td>
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<tr>
<td>9-10</td>
<td>C-Test</td>
<td>1.25</td>
<td>.006</td>
</tr>
<tr>
<td></td>
<td>LGVT</td>
<td>.016</td>
<td>.367</td>
</tr>
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</table>
## Model I (language competencies)

**linguistic quality (p < .001)**

<table>
<thead>
<tr>
<th>grade</th>
<th>predictor</th>
<th>β</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-6</td>
<td>C-Test</td>
<td>1.808</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>LGVT</td>
<td>-.015</td>
<td>.272</td>
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<tr>
<td>7-8</td>
<td>C-Test</td>
<td>1.397</td>
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<td>.017</td>
<td>.161</td>
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<tr>
<td>9-10</td>
<td>C-Test</td>
<td>1.969</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>LGVT</td>
<td>.016</td>
<td>.316</td>
</tr>
</tbody>
</table>
Model II (language use) explained variance $R^2$

<table>
<thead>
<tr>
<th>grade</th>
<th>Content development</th>
<th>Linguistic quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-6</td>
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<td>.002</td>
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<tr>
<td>7-8</td>
<td>.003</td>
<td>.002</td>
</tr>
<tr>
<td>9-10</td>
<td>.01</td>
<td>.019</td>
</tr>
<tr>
<td>Overall</td>
<td>.005</td>
<td>.003</td>
</tr>
</tbody>
</table>
## Model II (language use)
content development (subgroup 5-6)

<table>
<thead>
<tr>
<th>predictor</th>
<th>$\beta$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>multilinguality</strong></td>
<td>-.339</td>
<td>.015</td>
</tr>
<tr>
<td>Language use in Family</td>
<td>-.06</td>
<td>.578</td>
</tr>
</tbody>
</table>
Conclusion
Conclusion

■ No significant effects concerning the student’s argumentative writing skills development.
■ Argumentative competencies are being affected by general language competencies, reading competencies have no significant effect.
■ Weak relationship between multilingual education and argumentative competencies in a subgroup.
■ Multilevel analysis is being planned.
Thank you!

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