Motivations for Teaching and Relationship to Pedagogical Knowledge

Conceptual Frameworks
Measurement Instruments
Empirical Findings
Recommendations for Future Research

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Symposium
Teachers as Learning Specialists – Implications for Teachers' Pedagogical Knowledge and Professionalism
Brussels, 18 June 2014
Hosted by OECD’s Centre for Educational Research and Innovation and the Flemish Department of Education and Training
Introduction

Knowledge of future teachers: growing body of research

• answer to TIMSS and PISA
• teacher quality and the quality of teacher education
• teachers’ contribution to an increase in student achievement

Model of teachers‘ professional competencies
(cf. Baumert et al., 2010; Tutto et al., 2012)

- cognitive domains
  • content knowledge (CK)
  • pedagogical content knowledge (PCK)
  • general pedagogical knowledge (GPK)
- motivational-affective variables
  such as motivations for teaching as a career
This Presentation

- What conceptual frameworks have been used to consider the relationship between motivations for teaching and GPK (e.g., what hypotheses are used)?

- What do the empirical findings show to explicate the relationship (e.g., to what extent and how are motivation and knowledge connected)?

- What could be recommended for future research?
This Presentation

1 General Pedagogical Knowledge (GPK)

2 Teaching Motivations (Fit-Choice Scale Inventory)

3 Studies
   2.1 Study I (König & Rothland, 2012)
   2.2 Study II (König et al., 2013)

4 Discussion
1 GPK: Conceptual Framework

Test Design (König, Blömeke, Paine, Schmidt & Hsieh, 2011)

Content dimensions and cognitive processes

<table>
<thead>
<tr>
<th>content dimensions</th>
<th>cognitive processes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>recall</td>
</tr>
<tr>
<td>structure</td>
<td></td>
</tr>
<tr>
<td>motivation/management</td>
<td></td>
</tr>
<tr>
<td>adaptivity</td>
<td></td>
</tr>
<tr>
<td>assessment</td>
<td></td>
</tr>
</tbody>
</table>
1 GPK: Selected Findings

TEDS-M and further research

- International assessment validated through expert reviews and confirmatory approaches in TEDS-M, comparative analysis with pre-service teachers from the US, Taiwan, and Germany (cf. König et al., 2011; König & Blömeke, 2012)

<table>
<thead>
<tr>
<th>Country</th>
<th>M</th>
<th>SE</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>576</td>
<td>4.9</td>
<td>85</td>
</tr>
<tr>
<td>Taiwan</td>
<td>572</td>
<td>3.2</td>
<td>52</td>
</tr>
<tr>
<td><strong>International</strong></td>
<td><strong>500</strong></td>
<td><strong>2.2</strong></td>
<td><strong>100</strong></td>
</tr>
<tr>
<td>United States</td>
<td>440</td>
<td>3.0</td>
<td>66</td>
</tr>
</tbody>
</table>
1 GPK: Selected Findings

- Pre-service teachers at the end of training outperform pre-service teachers just entering training (cf. König, 2013)

<table>
<thead>
<tr>
<th>Overall general pedagogical knowledge test score</th>
<th>$M$</th>
<th>$SE$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start of training (LEK)</td>
<td>372</td>
<td>7,6</td>
<td>130</td>
</tr>
<tr>
<td>After two years training (LEK)</td>
<td>525</td>
<td>7,1</td>
<td>98</td>
</tr>
<tr>
<td>End of training (TEDS-M)</td>
<td>613</td>
<td>5,3</td>
<td>84</td>
</tr>
</tbody>
</table>

*TEDS-M Teacher Education and Development Study in Mathematics, LEK Longitudinal Survey of Student Teachers’ Pedagogical Competencies*
1 GPK: Selected Findings

- In-service teachers outperform pre-service teachers
  (cf. König, Blömeke, Klein, Suhl, Busse & Kaiser, 2014)

![Graph showing comparison between End of Training - Teacher Candidates and After Transition into Teaching - Early Career Teachers]
1 GPK: Selected Findings

- higher GPK test scores are associated with higher quality of instruction delivered to students
  (König & Pflanzl, under review)

### Teachers’ Pedagogical Knowledge
- GPK of Classroom Management
- GPK of Structure

### Student Ratings of Instructional Quality
- Teaching Methods, Teacher Clarity
- Classroom Management
- Teacher-Student Relationships
2 Teaching Motivations: Conceptual Framework

Fit-Choice (Watt & Richardson, 2007)

Factors influencing Teaching as a Career Choice

Socialisation Influences
- Social dissuasion
- Prior teaching & learning experiences
- Social influences

Task Demand
- Expert career
- High demand

Task Return
- Social status
- Salary

Self Perceptions
- Perceived teaching abilities

Intrinsic Value

Personal Utility Value
- Job security
- Time for family
- Job transferability

Social Utility Value
- Shape future of children/adolescents
- Enhance social equity
- Make social contribution
- Work with children/adolescents

Choice of Teaching Career

Fallback Career
3 Study I: GPK as a motivational outcome
(König & Rothland, 2012)

How are motivations for choosing teaching as a career and General Pedagogical Knowledge (GPK) related?

highly intrinsically motivated students generally outperform less intrinsically motivated students, whereas extrinsic motivation is usually associated with poorer performance and educational outcomes (cf. Baker, 2004; König & Rothland, 2012)

- FIT-Choice scale “intrinsic value” to be positively correlated with future teachers’ GPK
- extrinsic motivations such as “job security” or “time for family” and the motivation for choosing teaching as “fallback career” to be negatively correlated with future teachers’ test results
- correlational findings at two different occasions of measurement and contribution to professional knowledge growth over time
3 Study I: Sample and GPK Test

130 Pre-service teachers from the University of Erfurt, Germany
Two occasions of measurement within one academic year

Means of general pedagogical knowledge at two occasions of measurement with 95% confidence interval (König & Rothland, 2012, p. 303)
### 3 Study I: Results

**Intercorrelations between motivation and knowledge**

<table>
<thead>
<tr>
<th>Teaching motivations (FIT-Choice)</th>
<th>General Pedagogical Knowledge (GPK)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>t1</td>
</tr>
<tr>
<td>1. Perceived teaching abilities</td>
<td>.15</td>
</tr>
<tr>
<td>2. Intrinsic value</td>
<td>.11</td>
</tr>
<tr>
<td>3. Fallback</td>
<td>-.17*</td>
</tr>
<tr>
<td>4. Job security</td>
<td>-.21*</td>
</tr>
<tr>
<td>5. Time for family</td>
<td>-.03</td>
</tr>
<tr>
<td>6. Shape future</td>
<td>-.05</td>
</tr>
<tr>
<td>7. Enhance social equity</td>
<td>-.16</td>
</tr>
<tr>
<td>8. Make social contribution</td>
<td>-.05</td>
</tr>
<tr>
<td>9. Work with children/adolescents</td>
<td>.28*</td>
</tr>
<tr>
<td>10. Prior teaching and learning experiences</td>
<td>-.16</td>
</tr>
<tr>
<td>11. Social influences</td>
<td>-.11</td>
</tr>
</tbody>
</table>

* Correlation analysis controlled for age, sex, GPA

(König & Rothland, 2012, p. 304)
3 Study II: Motivation and Knowledge, Mediation

Direct and indirect motivational effects

- direct effects: e.g., time on task, information processing
- indirect effects: e.g., selecting an educational program or course
  
(cf., e.g., Schiefele, 2009)

Hierarchical model of achievement motivation

(Elliot & Church, 1997, p. 220)

- Motive dispositions → Achievement goals → Achievement-relevant outcomes

  Competence expectancies
3 Study II: Model

Path model: achievement motivation and goal orientation mediating between teaching motivations and GPK

Teaching Motivation
- Intrinsic Value

Achievement Motivation
- Hope for Success

Goal Orientation
- Learning Goal

- Performance Approach
- Performance Avoidance
- General Pedagogical Knowledge (GPK)
3 Study II: Research Question and Hypotheses

How are motivations for choosing teaching as a career and General Pedagogical Knowledge (GPK) related?

(1) Pre-service teachers who choose teaching mainly as a fallback career and report little intrinsic value will have lower GPK. (cf. Baker, 2004; König & Rothland, 2012)

(2) achievement motivation and goal orientations mediating between motivations for choosing teaching as a career and GPK
- The learning goal orientation has a particularly positive, direct effect on GPK (cf. Fasching et al., 2010).
- Learning goal orientation can be predicted by the hope for success motive directly and by the intrinsic value teaching motivation indirectly.

Similar findings in German-speaking countries due to similar cultural and linguistic backgrounds
3 Study II: Sample

First year pre-service teacher cohorts surveyed in autumn 2011 (start of winter term)

Project Title: “Development of Teaching Motivations and the Acquisition of Pedagogical Knowledge during Initial Teacher Education”

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of Universities/Pedagogical Colleges</th>
<th>Number of sampled pre-service teachers</th>
<th>Estimated population of pre-service teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>18</td>
<td>4,402</td>
<td>37,305</td>
</tr>
<tr>
<td>Austria</td>
<td>11</td>
<td>1,585</td>
<td>9,752</td>
</tr>
<tr>
<td>Switzerland</td>
<td>2</td>
<td>614</td>
<td>1,484</td>
</tr>
<tr>
<td>Total</td>
<td>31</td>
<td>6,601</td>
<td>48,541</td>
</tr>
</tbody>
</table>

(König, Rothland, Darge, Lünemann & Tachtsoglou, 2013)
3 Study II: Materials

Motivation
- Motivations for choosing teaching were measured by the FIT-Choice scale
  \textit{(Factors Influencing Teaching as a Career Choice; Watt & Richardson, 2007)}

- General achievement motivation by the AMS
  \textit{(Achievement Motive Scale; Gjesme & Nygard, 1970)}

- Goal orientation related to university studies by the SELLMO-ST
  \textit{(Skalen zur Erfassung der Lern- und Leistungsmotivation; Spinath et al., 2002)}

Knowledge
GPK by a paper-and-pencil test derived from TEDS-M
\textit{(Koenig et al., 2011)}
3 Study II: Results

Intercorrelations between motivation and knowledge

<table>
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<tr>
<td></td>
<td>Germany</td>
</tr>
<tr>
<td>1. Perceived teaching abilities</td>
<td>.07**</td>
</tr>
<tr>
<td>2. Intrinsic value</td>
<td>.06*</td>
</tr>
<tr>
<td>3. Fallback</td>
<td>-.08*</td>
</tr>
<tr>
<td>4. Job security</td>
<td>-.01</td>
</tr>
<tr>
<td>5. Time for family</td>
<td>.00</td>
</tr>
<tr>
<td>6. Shape future</td>
<td>.05#</td>
</tr>
<tr>
<td>7. Enhance social equity</td>
<td>-.02</td>
</tr>
<tr>
<td>8. Make social contribution</td>
<td>.03</td>
</tr>
<tr>
<td>9. Work with children/adolescents</td>
<td>.05*</td>
</tr>
<tr>
<td>10. Prior teaching and learning experiences</td>
<td>.01</td>
</tr>
<tr>
<td>11. Social influences</td>
<td>.04</td>
</tr>
<tr>
<td>Achievement Motive Scale (AMS)</td>
<td></td>
</tr>
<tr>
<td>13. Hope of Success</td>
<td>.05</td>
</tr>
<tr>
<td>14. Fear of Failure</td>
<td>-.01</td>
</tr>
<tr>
<td>Goal Orientation (SELLMO-ST)</td>
<td></td>
</tr>
<tr>
<td>15. Learning Goals</td>
<td>.13***</td>
</tr>
<tr>
<td>16. Performance-Approach Goals</td>
<td>.04</td>
</tr>
<tr>
<td>17. Performance-Avoidance Goals</td>
<td>-.02</td>
</tr>
</tbody>
</table>

* p ≤ .05   ** p ≤ .01   *** p ≤ .001   # p ≤ .10

χ²/df = 2.22, CFI = .923, RMSEA = .024, SRMR = .039
3 Study II: Results

Path model: achievement motivation and goal orientation mediating between teaching motivations and GPK

Teaching Motivation | Achievement Motivation | Goal Orientation

Intrinsic Value | Hope for Success | Learning Goal

Germany/ Austria/ Switzerland

General Pedagogical Knowledge (GPK)

Fallback | Fear of Failure | Performance Avoidance

bold coefficients: * p ≤ .05; italic coefficients: p ≤ .10; dotted line: all coefficients are p > .10

χ²/df = 2.53, CFI = .915, RMSEA = .026, SRMR = .046
Path model: achievement motivation and goal orientation mediating between teaching motivations and GPK

Teaching Motivation  Achievement Motivation  Goal Orientation

Germany/Austria/Switzerland

bold coefficients: * p ≤ .05; italic coefficients: p ≤ .10; dotted line: all coefficients are p > .10
χ²/df = 2.54, CFI = .915, RMSEA = .026, SRMR = .046
4 Discussion

Research on teaching motivations
- normative debates to be extended by pragmatic views?
- predictive validity
- integrating into a hierarchical model of motivation and linked to GPK

Upcoming challenges
- comparative analysis of knowledge growth as motivational outcome
- second occasion of measurement after two years of training (Autumn 2013) will allow continuing longitudinal work

Teacher competence as a multidimensional construct
- cognitive and non-cognitive measures to be taken into account
- related to normative debates
Thank you very much

for your attention

References
