Measuring teacher educators’ researcherly disposition: 
Item development and scale construction

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Overview

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• Exploratory Factor Analysis
• Confirmatory Factor Analysis
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Teacher educators’ professional development

- Developing a pedagogy of teacher education
  - ‘Enacting a pedagogy of teacher education requires a deep understanding of practice through researching practice’ (Loughran, 2007)
- Focus on the development of becoming a ‘teacher of teachers’ and a ‘researcher’ (Lunenberg et al., 2014)
  - ‘A rich dialectic of the two [researcher and teacher of teachers] wherein the lines between professional practice in teacher education and research related to teacher education are increasingly blurred’ (Cochran-Smith, 2005)
  - Developing an ‘inquiry as stance’ (Cochran-Smith, 2005) or ‘researcherly disposition’ (Tack & Vanderlinde, 2014)

Problem statement

1. No clear and comprehensive understanding of these concepts available in research literature (Lunenberg et al., 2014);
2. Nor empirical quantitative work on teacher educators’ researcherly disposition (Cochran-Smith & Zeichner, 2009; Lunenberg et al., 2014)

- Need for a clear conceptualization, common ‘shared’ language (Lunenberg et al., 2014; Vanassche, 2014);
- Empirical research on the effects of professionalisation activities on teacher educators’ professional development (Lunenberg et al., 2014)
Teacher educators’ researcherly disposition

1. A ‘smart’ consumer of research (Loughran, 2014)
   - Being research informed
   - Knowing how to read, evaluate, critique, interpret and use research in their own work (Cochran-Smith, 2005)
2. Conduct research into your own practice (Smith, 2003)
   - Twofold goal:
     - To improve your own teaching practice
     - To contribute to the knowledge base on teacher education
3. Value the importance of a research identity as a teacher educator (Cochran-Smith, 2005)

Teacher educators’ researcherly disposition

- Dispositions play a key role in explaining behaviour (Crick & Goldspink, 2014)
- A habit of mind towards particular patterns or behaviour (Katz & Raths, 1985)
  - The tendency to be a researching teacher educator?
  - Still ‘superfluous’ concept – No analytical value
- Disposition as a triad of inclination, sensitivity and ability (Perkins et al., 1993):
  - Inclination: affective dimension
  - Sensitivity: behavioural dimension
  - Ability: cognitive dimension
Teacher educators’ researcherly disposition

The habit of mind to engage in research as a teacher educator – as both a consumer of research and a producer of research to improve your own practice and contribute to the knowledge base on teacher education (Tack & Vanderlinde, 2014):

- Affective dimension: the extent to which a teacher educator values his/her role as a teacher educator-researcher
- Cognitive dimension: a teacher educator’s actual ability to consume and conduct research and to contribute to the knowledge base on teacher education
- Behavioural dimension: a teacher educator’s sensitivity or alertness to research opportunities in his/her daily practice.

Research goal

Developing a self-reported measurement instrument to assess teacher educators’ researcherly disposition
Methodology (in a nutshell)

- Survey study
- Item and scale development
  - Based on the earlier presented theoretical framework
  - 24 items (8 affective, 8 cognitive, 8 behavioural)
  - Evaluated by experts for content validity and clarity of the items
  - Six-point disagree-agree continuum
- Statistical analysis
  - Exploratory Factor Analysis (EFA) – SPSS 21
  - Confirmatory Factor Analysis (CFA) – Mplus
  - Reliability Analysis – SPSS 21

Exploratory Factor Analysis

- Sample randomly divided (even and odd split method)
- Sample A for EFA – 461 teacher educators
- Principal Axis Factor Analysis
- Promax Rotation
  - Assumption: factors are correlated
  - 4 items were deleted
    - Low communalities and cross-loadings
- Number of factors to retain = 4
  - Eigenvalues > 1
  - Scree test
  - Velicer’s MAP and Parallel Test
Participants

- 944 university-based teacher educators occupied in (1) a Centre for Adult Education (CAE) and/or (2) a College of Higher Education (CHE)
  - 75% females
  - 83% has a Masters’ degree, 6% a PhD
  - 42% has a degree in Education
  - 97% has a teaching certificate
  - 11.2 years experience as a TE
  - 18% has a research appointment in the institution
  - 36% has other relevant research experiences

Exploratory Factor Analysis (n=472)

1. **Valuing research as a teacher educator**
   = the extent to which a teacher educator values his/her role as a teacher educator-researcher

2. **Being a smart consumer of research as a teacher educator**
   = the degree to which a teacher educator is able to and uses existing research to inform his/her own practice

3. **Being able to conduct research as a teacher educator**
   = the extent to which a teacher educator is capable of conducting research into teacher education

4. **Conducting research as a teacher educator**
   = the degree to which a teacher educator is actively conducting research into teacher education
Confirmatory Factor Analysis (n=472)

Good fit, goodness of fit estimates:
\[ \chi^2 = 329.6, \text{df} = 162, \frac{\chi^2}{\text{df}} = 2.03 \]
CFI = .96
TLI = .95
SRMR = .04
RMSEA = .047

Reliability analysis (n=944)

<table>
<thead>
<tr>
<th>Scale</th>
<th>( \alpha )</th>
<th>M (0-5)</th>
<th>SD</th>
</tr>
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<tbody>
<tr>
<td>Being a smart consumer of research</td>
<td>.89</td>
<td>2.74</td>
<td>1.14</td>
</tr>
<tr>
<td>Valuing research as a TE</td>
<td>.86</td>
<td>2.68</td>
<td>1.09</td>
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<td>Being able to conduct research as a TE</td>
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<td>2.87</td>
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<tr>
<td>Conduct research as a TE</td>
<td>.87</td>
<td>2.04</td>
<td>0.99</td>
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</tbody>
</table>
Comparing subgroups of teacher educators

1. Do teacher educators from different groups interpret our measurement instrument in a similar way and are their scores comparable (measurement invariance)?

2. Do teacher educators score significantly higher on each of the subscales if they:
   - have earlier research experiences?
   - have been teaching in compulsory education?
   - are experienced teacher educators (> 3 years of experience)?
   - work in a College of Higher Education (vs. Centre for Adult Education)?

Comparing subgroups of teacher educators

1. Having research experience leads to significantly higher scores on each of the subscales (t between 5.65 and 12.89, p < .05) (Cohen’s d > .60)

2. Having more than 3 years of experience as a teacher educator leads to significantly higher scores on the scale ‘Smart consumer of research’ (t = 2.229, p < .05) (Cohen’s d = .24)

3. Working in a Centre for Adult Education leads to significantly lower scores on the scale ‘Conducting research as a TE’ (t = -2.332, p < .05) (Cohen’s d = .25)

4. Having teaching experience leads to significantly lower scores on the scale ‘Conducting research as a TE’ (t = -2.332, p < .05) (Cohen’s d = .25)
Discussion & Conclusion

- Teacher educators’ researcherly disposition as a multidimensional construct
- One of the first large-scale quantitative studies on teacher educators
- Offers a reliable measurement instrument on three levels
  - Research level: comparison between populations, gender, research experiences vs. no research experiences, …
  - Policy level: assessment instrument, shared language
  - Practical level: self-assessment instrument, instrument for professionalisation courses
- Further validation studies

References