Combining Generic and Content-Specific Practices in Exploring Teaching Quality in Physical Education

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Structure of Presentation

- Defining terms
  - *Generic and content-specific teaching practices*
- Current situation and the importance of combining generic and content-specific practices
- Research Question
- Methods
- Main findings
- Discussion and Implications
# Defining Terms

**Teaching practices**
Teacher actions and interactions with students and the content  
(Core Practices Consortium 2014)

<table>
<thead>
<tr>
<th><strong>Generic teaching practices</strong></th>
<th><strong>Examples</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>They cut across different subject matters</td>
<td>- Posing good questions</td>
</tr>
<tr>
<td></td>
<td>- Managing classroom time</td>
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<td></td>
<td>- Establishing a positive classroom climate</td>
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<td></td>
<td>- Assessing student learning</td>
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<td>- Structuring of tasks.</td>
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<table>
<thead>
<tr>
<th><strong>Content-specific teaching practices</strong></th>
<th><strong>Examples</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>They have particular functioning and specialized manifestations when occurring in the teaching of specific disciplines</td>
<td>- Demonstrating a motor skill in PE (Rink &amp; Werner, 1989)</td>
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<td></td>
<td>- Connecting representations in Math (Hill et al., 2008)</td>
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<td></td>
<td>- Capitalizing on texts in Language Arts (Grossman et al., 2010)</td>
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<tr>
<td></td>
<td>- Engaging students in investigations in Science (Kloser, 2014)</td>
</tr>
</tbody>
</table>
Why Combining the two Perspectives?

- ... because teaching is a complex phenomenon (Cohen, 2011)
  - Researchers need to be inclusive considering different approaches.

- ... because one perspective cannot substitute for the other
  - Correlations between generic and content-specific constructs were found to be lower than those among the instruments incorporating the same type of practices (e.g., Kane & Staiger, 2012).

- ... because certain generic and content-specific practices were found, largely in isolation, to contribute to student learning
  - Combining these practices might help us do even a better job in describing instructional quality and understanding how it affects student learning.
Purpose of the study

- Recent attempts bringing together the two perspectives:
  - Seidel & Shavelson’s (2007) meta-analysis
  - MET study (Kane & Staiger, 2012)
  - Charalambous & Kyriakides’ s (2017) exploratory study based on TIMSS secondary analyses

- The present study extends the above efforts by exploring teaching quality in PE, which mainly targets psychomotor outcomes.
What is the added value of exploring both generic and content-specific teaching practices as opposed to considering each type of practices in isolation?
Methods (1)

- **Setting and Participants**
  - 51 generalist teachers who taught PE to 3rd-5th graders (N=944)

- **Instrumentation**

  - **Performance test**
    - 13 psychomotor skills

  - **Observ. Instruments**
    - A high- and a low-inference form of:
      - **DMEE** (Creemers & Kyriakides, 2008): seven generic practices
      - **mTSS** (Siedentop *et al.*, 1994): five content-specific practices

  - **Student survey**
    - Part A: Background Variables
    - Part B: Generic & content-specific practices employed by the teacher
Methods (2)

- **Data Analysis**
  - **Item-Response-Theory (IRT) analysis** (Bond & Fox, 2012)
    - For the construct validity and the psychometric properties of the performance test and the two low-inference observation forms (DMEE & mTSS).
  - **Confirmatory Factor Analysis (CFA)** (Hu & Bentler, 1999)
    - To test the construct validity of the two high-inference observation forms (DMEE and mTSS) and the student survey.
  - **Multilevel Analyses** (Luke, 2004)
    - To explore the individual and joint effects of generic and content-specific practices on student psychomotor learning.
Main Findings (1)

- **Student- and Teacher-Level Variance**

<table>
<thead>
<tr>
<th></th>
<th>Model 0 (student post-test performance)</th>
<th>Model 1 (student background characteristics)</th>
<th>Model 2 (teacher background characteristics)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teacher</strong></td>
<td>14.57%</td>
<td>6.13%</td>
<td>6.13%</td>
</tr>
<tr>
<td><strong>Student</strong></td>
<td>85.43%</td>
<td>23.18%</td>
<td>23.18%</td>
</tr>
<tr>
<td><strong>% explained</strong></td>
<td>70.70%</td>
<td>70.70%</td>
<td>70.70%</td>
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</tbody>
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August 30, 2017
### Main Findings (2)

**Joint Contribution of Generic and Content-Specific Practices**

<table>
<thead>
<tr>
<th></th>
<th>Model 2</th>
<th>Model 3a* (generic practices)</th>
<th>Model 3b** (content-specific practices)</th>
<th>Model 3c*** (Combination of generic and content-specific practices)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teacher</strong></td>
<td>6.13%</td>
<td>2.81%</td>
<td>4.14%</td>
<td>2.48%</td>
</tr>
<tr>
<td><strong>Student</strong></td>
<td>23.18%</td>
<td>23.01%</td>
<td>22.85%</td>
<td>23.01%</td>
</tr>
<tr>
<td><strong>% explained</strong></td>
<td>70.70%</td>
<td>74.17%</td>
<td>73.01%</td>
<td>74.50%</td>
</tr>
</tbody>
</table>

*Generic practices entered in the model: Classroom disorder, Orientation, Questioning techniques, and Time management: waiting time.

**Content-specific practices entered in the model: Skill demonstration/Congruent and specific feedback, and Task progression: diversity.

***Generic and Content-Specific practices entered in the model: Classroom disorder, Orientation, Questioning techniques, Time management: waiting time, Skill demonstration/Congruent and specific feedback.

\[
\left(\frac{6.13 - 2.48}{6.13}\right) \times 100 = 59.54\%
\]
Discussion

- **Limitations**
  - The impact of generic and content-specific teaching practices on other learning outcomes (e.g., cognitive, affective) was not investigated.
  - Student learning was based on a criterion-reference test that involved decontextualized psychomotor skills.
  - A retention test could have also been distributed, to measure long-term effects of teaching.

- **Toward a more comprehensive description of instructional quality**
  - Combining generic and content-specific practices could explain about 60% of the teacher level variance that remained unexplained after controlling for certain student and teacher background characteristics.
  - Findings represent preliminary indications that can help the research community move toward the construction of a more comprehensive picture of what constitutes effective teaching (in PE).
Implications

- **Theoretical implications**
  - Theoretical advancements of educational effectiveness models to involve both generic and content-specific teaching practices.
    - This requires the exploration of the correlations that exist among generic and content-specific practices, as well as the theoretical and empirical determination of practices that might stand alone, and those that can be integrated—and most importantly how.

- **Practical Implications**
  - Improving in-service and pre-service professional development programs and assessment methods.
- Questions?
- Comments?
- Suggestions?
Thank you for your attention!

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