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

Charalambous, C. Y., Kyriakides, E.,
Tsangaridou, N., & Kyriakides, L.



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Structure of Presentation

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- **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

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Teaching practices

Teacher actions and interactions with students and the content

(Core Practices Consortium 2014)

Generic teaching practices

They cut across different subject matters

(Muijs et al., 2014)

Examples

- Posing good questions
- Managing classroom time
- Establishing a positive classroom climate
- Assessing student learning
- Structuring of tasks.

Content-specific teaching practices

They have particular functioning and specialized manifestations when occurring in the teaching of specific disciplines

(Charalambous & Kyriakides, 2017)

Examples

- Demonstrating a motor skill in PE (Rink & Werner, 1989)
- Connecting representations in Math (Hill et al., 2008)
- Capitalizing on texts in Language Arts (Grossman et al., 2010)
- Engaging students in investigations in Science (Kloser, 2014)

Why Combining the two Perspectives?

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- **... 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

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- **Recent attempts bringing together the two perspectives:**

- Seidel & Shavelson's (2007) meta-analysis
- MET study (Kane & Staiger, 2012)
- Charalambous & Kyriakides' s (2017)

**All in Math:
examining
cognitive or
affective
outcomes**

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.

Research Question

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- **Research Question**
 - *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)

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- **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)

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- **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)

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- Student- and Teacher-Level Variance

	Model 0 (student post-test performance)	Model 1 (student background characteristics)	Model 2 (teacher background characteristics)
Teacher	14.57%	6.13%	6.13%
Student	85.43%	23.18%	23.18%
% explained		70.70%	70.70%

The diagram illustrates the variance components for Teacher and Student levels across three models. Red arrows indicate the flow of variance from Model 0 to Model 1 and from Model 1 to Model 2.

- Teacher Level:** Model 0 explains 14.57% of the variance, which is reduced to 6.13% in Model 1. Model 2 explains 6.13% of the variance.
- Student Level:** Model 0 explains 85.43% of the variance, which is reduced to 23.18% in Model 1. Model 2 explains 23.18% of the variance.
- % explained:** The total variance explained by Model 1 is 70.70%, and Model 2 explains 70.70% of the variance.

Main Findings (2)

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- Joint Contribution of Generic and Content-Specific Practices

	Model 2	Model 3a* (generic practices)	Model 3b** (content-specific practices)	Model 3c*** (Combination of generic and content-specific practices)
Teacher	6.13%	2.81%	4.14%	2.48%
Student	23.18%	23.01%	22.85%	23.01%
% explained	70.70%	74.17%	73.01%	74.51%

*Generic practices entered in the model: Classroom disorder, Orientation,

Questioning techniques, and Time management: waiting

$$\left(\frac{6.13 - 2.48}{6.13} \right) * 100 = 59.54\%$$

**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.

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

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- **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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- Contact information:
- **Charalambos Y. Charalambous**
 - cycharal@ucy.ac.cy