ZMATH 2014b.00241

Blömeke, Sigrid; Houang, Richard T.; Suhl, Ute

Diagnosing teacher knowledge by applying multidimensional item response theory and multiple-group models.

Blömeke, Sigrid (ed.) et al., International perspectives on teacher knowledge, beliefs and opportunities to learn. TEDS-M results. Dordrecht: Springer (ISBN 978-94-007-6436-1/hbk; 978-94-007-6437-8/ebook). Advances in Mathematics Education, 483-501 (2014).

Summary: Researchers are still struggling to define a concept of pedagogical content knowledge that separates this dimension from content knowledge. Based on data from TEDS-M, an IEA study of mathematics teacher education in 16 countries, this paper aims to contribute to this discourse using different multidimensional approaches to modeling teacher knowledge. Another question of cross-cultural research is whether the characteristics of the latent traits examined and their interplay are homogeneous across countries (measurement invariance) or if it is necessary to treat the countries as separate groups. Our basic hypothesis is that more sophisticated multidimensional and multiple-group IRT models lead to valuable additional information that gives diagnostic insight into the composition of teacher knowledge. This is demonstrated using the TEDS-M data.

Classification: D20 D69
Keywords: TEDS-M; comparative study; validity; mathematics content knowledge; pedagogical content knowledge; measurement invariance; culture; between-item multidimensionality; within-item multidimensionality; two-parameter logistic model
doi:10.1007/978-94-007-6437-8_22