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Reit, Xenia-Rosemarie; Ludwig, Matthias

An approach to theory based modelling tasks.

Stillman, Gloria Ann (ed.) et al., Mathematical modelling in education research and practice. Cultural, social and cognitive influences. Cham: Springer (ISBN 978-3-319-18271-1/hbk; 978-3-319-18272-8/ebook). International Perspectives on the Teaching and Learning of Mathematical Modelling, 81-91 (2015).

Summary: The MokiMaS project (Modelling Competency in Mathematics Classes of Secondary Education) addresses the question how mathematical modelling competencies can be evaluated in a holistic context and points out a theory-based approach to assess students' modelling competency at the end of lower secondary education. In particular this chapter discusses criteria based modelling tasks, constituting the core of the test instrument. The piloting of the modelling tasks gave interesting insights into cognitive and structural differences of tasks. Furthermore, a strategy to classify the difficulty of modelling tasks on the basis of a thought structure model, describing the cognitive load of solution approaches is presented. Finally, the nature of a metrologically reasonable modelling task is discussed.

Classification: M10 D30

Keywords: modeling; modeling competencies

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