



Investigating the relations between characteristics of mathematical tasks and the subject-specific instructional quality of the respective lessons

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The potential for cognitive activation of tasks is an important aspect of teaching and often used to assess instructional quality (Neubrand et al., 2013; Herbert & Schweig, 2021). However, the extent to which the potential of a task is realized for mathematical learning process of the students, depends on many factors within and around the classroom, notably on the knowledge and beliefs of the teacher and the students' dispositions (Stein et al., 1996; Boston & Smith, 2011). In our study, we aim to analyze the relations between the use of different types of tasks and subject-specific aspects of instructional quality. To this end, we draw on data from the TEDS-Validate study, namely lesson observations (n=60) and an in-depth analysis of all tasks used in the respective lessons (n=2490).

For the analysis of the task characteristics, all tasks set by the teacher throughout the course of the lessons were sampled. A rational task analysis was then carried out using a classification scheme developed in the context

of the TEDS-Validate study. Six distinct types of tasks could be identified by means of latent class analysis based on the tasks' potential for fostering general mathematical competencies (Niss, 2015). The assessment of the (subject-specific) instructional quality of the lessons was performed using the observation protocol from the TEDS-Instruct study, which distinguishes four dimensions of instructional quality: classroom management, student support, cognitive activation and educational quality in mathematics (Blömeke et al., 2022; Jentsch et al., 2021). First results show potential relations between the proportion of tasks from different types and the ratings for instructional quality of the respective lessons. In-depth analyses of these relations are currently carried out and will be presented at the conference.