

## **Professional Competencies of (Prospective) Mathematics Teachers - Cognitive versus Situated Approaches**

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Abstract: Recent research on the professional competencies of mathematics teachers, which has been carried out during the last decade, is characterized by different theoretical approaches on the conceptualization and evaluation of teachers' professional competencies, namely cognitive versus situated approaches. Building on the international IEA Teacher Education and Development Study in Mathematics (TEDS-M) and its Follow-up study, TEDS-FU, the lecture compares cognitive and situated approaches on professional competencies of teachers. In TEDS-FU the cognitive oriented framework of TEDS-M has been enriched by a situated orientation including the novice-expert framework and the noticing concept as theoretical approaches on the analyses of classroom situations. Correspondingly, the evaluation instruments were extended by using video-vignettes for assessing teachers' perception, interpretation and decision-making competencies in addition to cognitive oriented knowledge tests. The lecture discusses the different kinds of theoretical frameworks and the consequences for the evaluation methods, the strengths and weaknesses of both approaches. Furthermore, connecting the results of TEDS-FU with TEDS-M allows comprehensive insight into the structure and development of the professional competencies of mathematics teachers, the complex interplay between the different facets of teachers' competencies and the high relevance of teaching practice for the development of these competencies. Especially analyses on the nature of teachers' competencies will be presented in detail.

Overall, the analyses show on the one hand that both approaches - cognitive and situated - are needed for a comprehensive description of teachers' professional competencies. On the other hand it is shown that both approaches can be integrated in a productive way.