

# NEEDS-BASED MATHEMATICS TEACHERS' CONTINUOUS PROFESSIONAL DEVELOPMENT

Michael Casper, Bettina Roesken-Winter

Ruhr-Universität Bochum

Continuous professional development (CPD) has been assigned a key role for improving mathematics teaching and learning. One crucial approach lies in providing long-term CPD offers that balance theoretical input and implementation in practice. In accordance, teachers' professional growth can be captured in terms of four analytic domains that are connected by the mediating processes of *reflection* and *enactment* (Clarke & Hollingsworth, 2002): first, the *personal domain*, comprising teacher knowledge, beliefs and attitudes; second, the *domain of practice*, covering professional experimentation; third, the *domain of consequence*, meaning salient outcomes; and fourth, the *external domain*, containing sources of information, stimulus or support. Based on this model, a CPD course provided by the German Center for Mathematics Teacher Education (DZLM), in which experienced teachers are engaged for one year, is evaluated. Data was collected for all four domains beginning with the personal domain, in order to answer the questions what knowledge and experiences teachers possess for the specific field of problem solving and how such information can be best integrated in offers from the external domain.

The sample comprises 14 experienced and influential teachers engaged in a course organized in three layers of theoretical input on problem solving and its teaching, exploring problem solving issues in practice, and reflecting these experiences. In relation to the personal domain, the teachers were asked to explain their experiences with and understanding of teaching problems from both perspectives as teachers and teacher educators in an open questionnaire. The data analysis was based on content analysis and, among others, yielded the following crucial points. Teachers often see no need to know about problem solving theory. They are well aware of restraints in time and resources that prohibit establishing a problem solving culture. All information was used to continuously customize the course to the exact needs of the group of teachers involved. In the future we plan to do the same in reference to the domains of practice and consequence and hence expect further fascinating insights.

## References

Clarke, D., & Hollingsworth, H. (2002). Elaborating a model of teacher professional growth. *Teaching and Teacher Education*, 18, 947–967.