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**The combination of qualitative and quantitative research methods in mathematics education: a “mixed methods” study on the development of the professional knowledge of teachers.**

Bikner-Ahsbals, Angelika (ed.) et al., Approaches to qualitative research in mathematics education. Examples of methodology and methods. Dordrecht: Springer (ISBN 978-94-017-9180-9/hbk; 978-94-017-9181-6/ebook). Advances in Mathematics Education, 321-361 (2015).

Summary: Research about education in mathematics is influenced by the ongoing dispute about qualitative and quantitative research methods. Especially in the domain of professional knowledge of teachers one can find a clear distinction between qualitative, interpretive studies on the one hand and large-scale quantitative assessment studies on the other hand. Thereby the question of how professional knowledge of teachers can be measured and whether the applied constructs are developed on a solid theoretical base is heavily debated. Most studies in this area limit themselves to the use of either qualitative or quantitative methods and data. In this chapter we discuss the limitations of such mono-method studies and we show how a combination of research methods within a “mixed methods design” can overcome these problems. Thereby we lay special emphasis on different possibilities a mixed methods approach offers for a mutual validation of both qualitative and quantitative findings. For this purpose, we draw on data and results coming from an empirical study about a teacher training program in mathematics, where quantitative data measuring the development of professional knowledge of student teachers were related to qualitative in-depth interviews about the training program.

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