

ZMATH 2016e.00282

vom Hofe, Rudolf; Blum, Werner

“Grundvorstellungen” as a category of subject-matter didactics.

J. Math.-Didakt. 37, Suppl. 1, S225-S254 (2016).

Summary: One of the central issues that has long captivated research efforts in mathematical education concerns the question of what mental representations people have of mathematical content. That is, what meaning do people associate with mathematical content, and what role do these mental representations play in teaching and learning mathematics? To this end, a number of different categories concerning mental representations have been developed, including, e.g. “intuition”, “use meaning” or “concept image”. One approach, stemming from the German *Stoffdidaktik* (subject-matter didactics) tradition, is constituted by the didactic category of *Grundvorstellung(en)*. In this contribution we begin by investigating the origins and the development of the concept of *Grundvorstellung* in the German-speaking research literature on mathematics education. Then, we summarize the main ideas of the concept, particularly concerning its normative, descriptive, and constructive use as well as the distinction between primary and secondary *Grundvorstellungen*. Following this, a number of typical areas of application will be considered. We will then discuss the use of *Grundvorstellungen* in the construction and classification of items for quantitative assessment, as well as the role of *Grundvorstellungen* as a descriptive and explanatory category in empirical classroom research.

Classification: D20 C30

Keywords: subject-matter didactics; mental mathematical representations; didactically-oriented mathematical analysis

doi:10.1007/s13138-016-0107-3