WHAT STRATEGIES DO PRIMARY SCHOOL CHILDREN USE IN MEASUREMENT ESTIMATION PROBLEMS?

Dagmar Bönig

University of Bremen, Germany

In mathematics instruction at school frequently the search for a precise answer is dominant. In every-day life however, we often base our decisions on estimations, sometimes because it takes less time or effort, sometimes because it is the only suitable method to solve a problem. In addition, (measurement) estimation competencies play an essential role in the development of number sense (Dehaene 1997; Greeno 1991). Nevertheless, currently little attention is given to this topic both in education research and classroom instruction (e.g. Sowder 1992).

The poster presents the estimation problems and findings of a large scale empirical study involving over 100 primary school children (grade 3 and 4), who were asked to solve a variety of estimation problems in an interview setting. Since the main research interest was concerned with the qualitative analysis of the estimation process, the key findings relate to the estimation strategies the children used in these contexts. The poster will display photographs of several problems used in the clinical interviews and illustrate the observed student strategies. In conclusion, a system of major categories which has been developed on the basis of these results as well as under consideration of models dicussed in the research literature (Forrester et al. 1990, Hildreth 1983, Siegel et al. 1982) will be proposed. In this connection, special attention is given to the relationship between task demands and the observed strategies as well as to the role of spatial structuring in measurement estimation situations (Battista et al. 1998).

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