

**ZMATH 1999c.01712**

**Slavit, D.**

**Operational sense in first grade addition.**

Owens, D.T. et al., 17. annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA XVII). Proceedings. Vol. 2. ,. 331-337 (1995).

This paper outlines a theoretical perspective for studying student understandings of the concept of addition. The notion of operational sense is defined as a way to describe the notion of addition as a mathematical object, paving the way for an application of the theory of reification at this level. Previous frameworks relative to problem solving are also incorporated. The report of a year-long investigation in a first-grade classroom is then provided. It was found that understandings of specific aspects of operational sense were beneficial to successful problem solving strategies on part-unknown action tasks. These understandings were also beneficial to the ability to transfer knowledge of addition to a finite group setting (clock arithmetic). Hence, a connection was found between specific kinds of knowledge of arithmetic and the students ability to model the actions of a problem. Limitations of the framework and study are also discussed. (orig.)

*Classification:* F32