

Early learning of mathematics and the use of picture books in teaching

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The research study reported in the paper is focused on exploring the effects of picture book reading in grade 1 mathematics classrooms. The goal is to understand the power of stories and of illustrations in picture books to stimulate in children cognitive processes which encompass the formation of mathematical concepts and the development of mathematical thinking. The underlying theoretical perspectives are based on a (social) constructivist approach to learning grounded in the work of Piaget and that of Vygotsky. A description of the process of selection of picture books based on characteristics which are postulated to support mathematics learning is given, as well as an account of videotaped sessions with small groups of 6-year old pupils being read a selected picture book in some of which the teacher used appropriately chosen questions to enhance pupils reactions. Observed verbal reactions are recorded based on the written transcripts and then categorized using a framework of mathematical reactions. Correlations between pupils level of cognitive engagement measured via the frequencies of their mathematical reactions during the picture book reading and their achievements on a specially prepared test administered at the end of the first semester are discussed.