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Reflection, communication, and learning mathematics: a case study.

Learn. Instr. 4, No. 2, 123-138 (1994).

Summary: In recent reform programs in mathematics education it has been advocated, mainly on theoretical grounds, that reflection and communication are to be viewed as important means when children learn mathematics. The aim of this paper is to give an empirical account of how such processes influence learning when children solve a mathematics problem. A case study is presented, where four children (11 years of age) from the fifth form of a Swedish comprehensive school are engaged in laboratory work exploring the nature of numbers and eventually the problem of infinity. The pupils are observed during the learning session and the verbal interaction between the children is tape-recorded and later transcribed. In the analysis the pupils' interpretations of the task are described and so are their attempts to solve the problem. The results show how children make productive use of aspects of the communicative situation as well as personal, idiosyncratic knowledge when solving the task. The results point to the importance of considering the contexts that the learners create when faced with an assigned task and the implicit rules that teachers and pupils take for granted when interpreting a given task.

Classification: D43 D53 C33

Keywords: reflection; communication; problem solving

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