Maschietto, Michela

The arithmetical machine Zero + 1 in mathematics laboratory: instrumental genesis and semiotic mediation.


Summary: This paper presents the analysis of two teaching experiments carried out in the context of the mathematics laboratory in a primary school (grades 3 and 4) with the use of the pascaline Zero + 1, an arithmetical machine. The teaching experiments are analysed by coordinating two theoretical frameworks, i.e. the instrumental approach and the theory of semiotic mediation. The paper focuses on the analysis of the semiotic potential of the pascaline and students’ instrumental genesis, on the functions of schemes and gestures of usage.

Classification: F32 U62 D32 D42

Keywords: arithmetic; artefact; instrumental genesis; mathematics laboratory; pascaline; semiotic mediation

doi:10.1007/s10763-013-9493-x