

Cultural artifacts: semiotic mediation in the mathematics classroom with a possible extension to the physics classroom.

Maria G. Bartolini Bussi

Department of Education and Human Studies

University of Modena and Reggio Emilia (Italy)

bartolini@unimore.it

My presentation deals with the use of artifacts in primary school for the purpose of constructing mathematical meanings. After a short presentation of the theoretical framework of semiotic mediation after a Vygotskian framework [1], I plan to report on some experiments about arithmetic, drawing mostly on the studies carried on by my research group. I plan to focus on the “pascaline”, a modern reconstruction of an artifact of the 17th century, designed and built by the philosopher Blaise Pascal to help his father in computation, as at that time counting boards with tokens were still used [2]. In the second part of my presentation, I plan to report the extension to physics education of the theoretical framework of semiotic mediation, drawing on a joint research study with science educators. the theoretical framework of semiotic mediation might offer methodological scaffolding for teachers in order to mediate scientific meanings that have been historically incorporated in artifacts and experimental methods [3].

REFERENCES

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(references are attached)