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INTERNATIONAL GROUP FOR THE PSYCHOLOGY
OF MATHEMATICS EDUCATION

» Mathematics learning across the life span «

Volume 5
PME 37 / KIEL / GERMANY
July 28 – August 02, 2013

Editors
Anke M. Lindmeier
Aiso Heinze
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SHORT ORAL COMMUNICATIONS
SCHOOL MATHEMATICS AND BUREAUCRACY

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With regard to the dominance of traditional calculation tasks, school mathematics has often been called ‘bureaucratic’. However, this attribution has received hardly any attention in research. Skovsmose’s (2005, pp. 11–12) suggestion that the dominance of calculation tasks serves as a preparation for jobs in administration gives rise to the research questions of this study: In how far is calculation connected to bureaucracy and what does that tell about the social functions of school mathematics?

My theoretical analysis compares Max Weber’s (1947) theory of bureaucratic administration with Sybille Krämer’s (1988) history of formalisation, looking for developmental analogies and conceptual similarities. The latter are more deeply understood under the light of the epistemological shift around 1600 which was first analysed by Michel Foucault (1970). Finally, my research comes back to mathematics education, drawing some conclusions concerning the social functions of school mathematics.

From the comparison of bureaucracy and calculation, it can firstly be concluded that most advancements in the formalisation of calculation temporally and locally collided with the existence of strong bureaucratic administrations. It can secondly be found that both calculation and bureaucracy share a common style of thought which is based on the reduction of situations to cases and the impersonal treatment of those cases along pre-given rules. Finally, it can be shown that this style of thought follows an epistemological trend which was fully cultivated around 1600 and is typical for modern thinking – a trend which establishes a man-made and autonomous symbolic realm unconnected with ‘reality’. On this basis, it can not only be argued that calculation tasks – unlike any other tasks in school – require, train, cultivate and test a bureaucratic style of thought; it can also be argued that mathematics education introduces the student to a style of thought typical for modernity. Although hardly recognised in research, the cultivation and testing of a bureaucratic style of thought can be understood as a central social function of school mathematics. Furthermore, mathematics education can be understood as an institution which implicitly creates acceptance for bureaucratic practices. Taking this serious can inspire further research and allow a deeper understanding of problems in the practice of mathematics education.

References