

ZMATH 2013c.00265

Jankvist, Uffe Thomas

History, applications, and philosophy in mathematics education: HAPh – a use of primary sources.

Sci. Educ. (Dordrecht) 22, No. 3, 635-656 (2013).

Summary: The article first investigates the basis for designing teaching activities dealing with aspects of history, applications, and philosophy of mathematics in unison by discussing and analyzing the different ‘whys’ and ‘hows’ of including these three dimensions in mathematics education. Based on the observation that a use of history, applications, and philosophy as a ‘goal’ is best realized through a modules approach, the article goes on to discuss how to actually design such teaching modules. It is argued that a use of primary original sources through a so-called guided reading along with a use of student essay assignments, which are suitable for bringing out relevant meta-issues of mathematics, is a sensible way of realizing a design encompassing the three dimensions. Two concrete teaching modules on aspects of the history, applications, and philosophy of mathematics – HAPh-modules – are outlined and the mathematical cases of these, graph theory and Boolean algebra, are described. Excerpts of student groups’ essays from actual implementations of these modules are displayed as illustrative examples of the possible effect such HAPh-modules may have on students’ development of an awareness regarding history, applications, and philosophy in relation to mathematics as a (scientific) discipline.

Classification: D34 A34 E24 D24 M14

Keywords: history of mathematics; philosophy; applications; teaching material

doi:10.1007/s11191-012-9470-8