Mathematics and Mathematics Education: The technology as strategy of a hermeneutical approach of the History of Mathematics to teach school mathematics content

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Developing diverse teaching materials for classroom use that conform to the interest and needs of both teachers and students, as well as to the updated curriculum requirements is one of the challenges of current teacher education research. In the process of such development, the History of Mathematics, as a motivation to the learning of mathematics content, is one of powerful strategies for improved teaching. We enhance the hermeneutical approach of introducing and developing school mathematics content with investigative problem solving activities, meaningful from the perspective of History of Mathematics. An interpretation of the historical importance of mathematical problems may depend on the context of the reader as well as the solver, in particular when one considers mathematical problems from different points of view as of a teacher, a mathematician, a professional user of applied mathematics, or even of curious student or ordinary citizen. The hermeneutical approach to rich collection of problems, historically important for the development of mathematics concepts and mathematics as science itself, offers ground to teacher education researchers for deeper reflections and means to understand the role of problem solving in the context of classroom practice, towards an efficient learning environment. On the other hand, contemporary educational technologies can enhance this approach, for their use empowers the didactical interpretation of problems, highlights the historical and cultural meanings of problems as well as the curriculum objectives of mathematics implied in those problems. We present some examples of didactical material for courses for mathematics teachers, using an interpretative approach to History in a DGS environment. The problem solving steps that enhance the learner´s active participation in the investigation activities constitute innovative teaching strategy that entails teachers´ understanding about the perspective of others.