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ICT as a way of making original sources accessible to students

Abstract:

As often pointed out, a use of original sources is one of the most rewarding but also one of the most challenging endeavors in the teaching and learning of mathematics (e.g. Jahnke, 2000 ...). In this paper we argue for the use of ICT in making original sources more accessible to the students. More precisely we present a teaching scenario outlining a use of *GeoGebra* to ‘unpack’ selected propositions from Euclid’s *Elements*. We discuss potential benefits of applying ICT as a ‘tin opener’ to original sources through Duval’s (2006) framework of semiotic registers and through Trouche (2005) framework of instrumental genesis. In particular we point to ICT potentially offering a more accessible register to the students as opposed to the initial challenging encounter with an original source. This may be expected to ‘ease’ the task of conversion between the different registers, related to the content of the original source, on a student’s behalf. Such a use of ICT bears a highly epistemic value (Artigue, 2002). The combination of original sources and use of ICT appears to be a somewhat overlooked area in the HPM research (one example is Chorlay, 2015). Hence, the suggestions of this paper call for further empirical investigations. Yet, in this paper we lay down the theoretical bricks for a mathematics education framework to do so.

Keywords: Original sources, ICT, semiotic registers, instrumental genesis.

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