This Research Forum seeks to promote further discussion on activity theoretical approaches to mathematics classroom practices with the use of technology. Its origins go back to discussions and collaborations between European mathematics education researchers whose approach to research on the use of technology in mathematics classrooms is ‘informed’ by activity theory (AT). These discussions resulted in a two volume special edition of a journal (see Vandebrouck et al., 2012/13). Our aim at PME is to widen this discussion.

After brief introductions to AT by John Monaghan and to recent French AT developments by Jean Baptiste Lagrange, four research teams outline their approaches and results: in the two first papers, the authors Ulrich Kortenkamp and Silke Ladel on one side and Giorgios Psycharis on the other side show how the use of an Activity-Theory-based framework can lead to design decisions for digital learning artefacts. In the two others papers, the emphasis shifts also to the teachers’ activity. Mirco Maracci and Maria Alessandra Mariotti elaborate on the notion of semiotic mediation, in relation to the use of artefacts to enhance mathematics teaching-learning. At last, Barbara Jaworski and colleagues use two AT frameworks to juxtapose different perspectives: the one from those designing an innovative mathematics teaching approach and the one from the students experiencing this teaching.

All papers focus directly or indirectly on the use of (technological) artefact as tools with a meditational goal. They draw on a range of various forms of AT addressing students’activities, teachers’activities or both. Starting from theses papers, the research forum seeks to promote the way AT is connected to mathematical learning and teaching; why AT seem to be so useful and therefore important in tool use? What do we mean by tools? Their mediational properties? What about AT and other theories?