CERME 13: Thematic Working Group 16
Learning Mathematics with Technology and Other Resources

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Scope and focus of the Working Group

The scope of this thematic working group (TWG) is to address opportunities and constraints of the use of digital technology and other resources for students' learning of mathematics. By other resources, we consider traditional non-digital resources such as textbooks, worksheets, various types of tools and manipulatives, and the relationships between these traditional and new types of resources, some of which may involve technology. We are also interested in the role of new tools for educational research. As a result, we are looking forward to establishing an overview of the current state of the art, focusing on theoretical and methodological advances, embodiment, new roles for new tools for learners and researchers, the sharing of good practice, and design heuristics. We also aim to suggest significant future trends for technology-rich mathematics education, including a research agenda. TWG15 addresses a similar global topic but focuses on the teaching rather than on the learning of mathematics with digital technology and other resources.

Call for papers and poster proposals

To foster coherence in the TWG and academic progress in its topic, we identified the following four main themes and particularly call for papers and posters contributing to:

1. **Theoretical and methodological advances in using digital technology for students' learning of mathematics**. How do theoretical frameworks and technological means interplay in the field of research on mathematical learning? Which new theoretical lenses are emerging, and how do they inform our understanding of student learning with technology and other resources? How could we align different theoretical and methodological perspectives regarding the use of technology in mathematics learning? How can new technology-based research methods affect theoretical developments and empirical findings?

2. **Embodiment and the use of digital technology for students' learning of mathematics**. How could we design activities that offer distinctive mathematical experiences with technology to students? How can the usage of digital technology support an embodied approach to mathematical learning?

3. **New roles for new tools (e.g., augmented and virtual reality, 3D printers)**. What learning opportunities are offered by new technologies such as augmented and virtual reality, 3D printers, 3D pens, etc., to students? How could students benefit from these opportunities?

4. **Good practices in technology-rich design, learning, and assessment for students' learning of mathematics**. Which design principles and heuristics may guide the design of productive activities? How should we orchestrate resource-rich mathematics lessons? Which is the role for technology in assessment?

Any paper/poster of relevance to the overall focus of the group will be considered.

Papers and poster proposals should use the CERME template, and conform to the guidelines at https://cerme13.renyi.hu/. CERME 13 uses an electronic submission system https://www.conftool.pro/cerme13/. The authors submit the initial version of their paper on the website (uploading it both as a .doc and a .pdf file, and providing the required information, in particular the TWG number).

Reviews and decisions

Each paper will be peer-reviewed by two persons from among those who submit papers to this TWG. Please expect to be asked to review up to two papers yourself. The group leaders will decide about the acceptance of posters.

Important dates

- **15 February 2023:** Deadline for submission of papers and posters.
- **5 April 2023:** Preliminary decisions on papers and posters.
- **10-14 July 2023:** CERME 13 takes place.
- **See** https://cerme13.renyi.hu/deadlines **for other important dates**