TSG 42 Uses of technology in lower secondary mathematics education (age 10 to 14)

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There is no doubt that digital technology nowadays is omnipresent in society. As a consequence, the question is which impact this has for the teaching and learning of mathematics. The ICME-13 Topic Study Group «Uses of technology in lower secondary mathematics education» will address this topic for education to 10 to 14 year olds and aims to:

- establish an overview of the current state of the art in technology use in mathematics education, including both practice-oriented experiences and research-based evidence, as seen from an international perspective;
- suggest important trends for technology-rich mathematics education in the future, including a research agenda and school level implementation strategies.

Other ICME-13 TSGs focus on primary or upper secondary (TSG 41 and TSG 43, respectively) or on e-learning and blended learning (TSG 44). As there is one general TSG on in-service and professional development of secondary mathematics teachers (TSG 50), the TSG 42 described here will include both a learner's and a teacher's perspective on digital technology in lower secondary mathematics education. Contributions on both perspectives are welcomed.

The following themes will be addressed.

- Evidence for effect:
  What are the research findings about the benefits for student learning of the integration of digital tools in lower secondary mathematics education?

- Mathematics education in 2025:
  What will lower secondary mathematics education look like in 2025, with respect to the place of digital tools in curricula, teaching and learning? How can teachers integrate physical and virtual experiences to promote deep understanding of mathematics?

- Digital assessment:
  What are features of appropriate online assessment of, for and as learning?

- Communication and collaboration:
  How can digital technology be used to promote communication and collaborative work between students, between teachers, and between students and teachers? What are the potential professional development needs of teachers integrating digital tools into their teaching, and how can technology act as a vehicle for such professional development activities?

This list is not exhaustive and contributions on other questions of interest will also be considered.

Key contributions will be provided by:

- Lynda Ball, Melbourne (Australia)
- Bärbel Barzel, Essen (Germany)
- Alison Clark-Wilson (U.K.)
- Paul Drijvers (The Netherlands)
- Brigitte Grugeon, (France)
- M. Kathleen Heid (USA)
- Allen Leung (Hong Kong, China)
- Ulrich Kortenkamp (Germany)