TSG 2 Mathematics education at tertiary level

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Research in mathematics education at the tertiary level has experienced tremendous growth over the last decades, integrating theoretical and methodological frameworks from cognitive psychology, sociology, anthropology, epistemology and history of science. While many mathematics lecture halls are still dominated by instructor's “chalk and talk” and the traditional “axiom-definition-theorem” model for University Mathematics teaching, others engage in creative explorations, the use of technology, and problem solving. The aim of this Topic Study Group will be to discuss and to exchange recent trends and perspectives from around the world. The topic is broad, not only because of the geographical and cultural diversity, but also because of the variety of students that take Mathematics at tertiary level: future research mathematicians; students pursuing a degree in science, technology, engineering, or mathematics; liberal arts students; prospective teachers shaping a view of school Mathematics from a new standpoint – just to mention a few target groups and levels. Within their specific contexts, each of these groups is entering a new learning and social environment and may experience difficulties in the transition to more advanced mathematical activities. More recently, the emergence of digital technologies has led to changes in syllabi and to new paradigms of teaching and learning. These technologies have also changed the topology of the classroom, in the sense that they establish new ways of relating and communicating among instructors and students.

Thus, in this Topic Study Group, we will give special focus on the following:

- The extent to which research advances from different theoretical perspectives have an actual impact on university classroom teaching and learning.
- Transition to university mathematics teaching and learning.
- Design of learning environment and uses of technology in tertiary mathematics education.
- Advanced mathematical topics in pre-service teacher education and their relationships with content knowledge for teaching.

Invited contributions

- Elena Nardi, University of East Anglia, UK (slarsen@pdx.edu)
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