# TSG 33
# KNOWLEDGE IN/FOR TEACHING MATHEMATICS AT SECONDARY LEVEL

The Organizing Team

  Chair: Nils Buchholtz, University of Oslo, Norway

  Co-chair: Miguel Ribeiro, State University of Campinas, Brazil

  Members:

    Miroslawa Sajka, Pedagogical University of Cracow, Poland

    Ng Swee Fong, National Institute of Education, Singapore

    Qiaoping Zhang, The Education University of Hong Kong, Hong Kong/

TSG 33 aims to display the progress in the discussion on Mathematics Education research concerning the theme "Knowledge in/for teaching mathematics at secondary level". Since ICME-13, research, theory, and practice in this area has developed all over the world and especially questions about the relations between teachers' knowledge and instructional quality in mathematics teaching at secondary level have been addressed by many researchers. The goal of TSG 33 is to focus on a set of critical areas and to promote the international discussion on the insights and challenges researchers, mathematicians, teacher educators, teachers, and policy makers are facing when dealing particularly with teachers' knowledge in/for teaching mathematics at secondary level. TSG 33 will focus on the following issues and respective key questions:

*1. Conceptualization of knowledge in/for teaching mathematics at secondary level*
  a)  What kind of knowledge in/for teaching mathematics should be taken into account in order to become a good/successful mathematics teacher at secondary level?
  b)  Defining crucial, core features, basic abilities, attitudes and beliefs – Attempts of a normative approach.
  c)  What kind of aspects are taken into account in different existing theoretical frameworks?

*2. Measurement of knowledge in/for teaching mathematics at secondary level*
  a)  What kind of aspects are measured when assessing knowledge in/for teaching mathematics at secondary level?
  b)  How to measure knowledge in/for teaching mathematics at secondary level?

    c) Are these measurements/instruments suitable for different context?

*3. Connections between theoretical knowledge in/for teaching mathematics at secondary level and practical teaching competence in mathematics, instructional quality in mathematics teaching and/or student achievement.*
    a) What differentiates theoretical knowledge in/for teaching mathematics at secondary level from practical teaching competence?
    b) What are the relations between teachers' affects with their knowledge in/for teaching mathematics at secondary level?
    c) What kind of situational knowledge/skills are needed/observable in practice and how does teachers' knowledge frame instructional quality in mathematics teaching and relate to student achievement?

*4. Practical implications for teacher training and validation of research on knowledge in/for teaching mathematics at secondary level*
    a) What are appropriate teacher education/training measures to gain knowledge in/for teaching mathematics at secondary level?
    b) What kind of knowledge is relevant for practice and where and how do teachers learn this knowledge?
    c) How can studies on teachers' knowledge be used to improve teacher education/training?

Since these aspects will structure the work in the TSG 33 thematically, we ask the paper submitter to assign themselves to one or more of the mentioned aspects and to address the corresponding aspects in the submission.