



## **TSG 46 Knowledge in/for teaching mathematics at secondary level**

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TSG 46 aims to display the progress since ICME-12 of work from around the world — development, research, theory, and practice — concerning the theme *knowledge in/for teaching mathematics at the secondary level*. The goal is to focus on a set of selected critical areas and to promote the discussion of significant questions and problems that warrant collective international attention of researchers, mathematicians, teacher educators, mathematics teachers, and policy makers. Toward that end, TSG 46 will focus on the following issues:

1. Conceptualization and theorization of knowledge in/for teaching mathematics at the secondary level:
  - a. What are the similarities and what are the differences between different existing conceptual frameworks?
  - b. How applicable are existing frameworks developed mainly in relation to primary level for capturing the knowledge needed in/for teaching at the secondary level?
  - c. How topic-specific are conceptualizations of knowledge in/for teaching at the secondary school mathematics level? Is there a need for different conceptualizations of knowledge in/for teaching different topics (e.g., algebra, geometry, analysis, probability and statistics)?

- d. To what extent are different conceptualizations of knowledge in/for teaching mathematics at the secondary level related to cultural and societal factors?
2. Methods for measuring, assessing, evaluating and comparing knowledge in/for teaching mathematics at the secondary level:
    - a. What aspects of knowledge in/for teaching mathematics at the secondary level are measured, assessed, and evaluated by current research?
    - b. What aspects of knowledge in/for teaching mathematics at the secondary level are not measured, assessed, and evaluated by current research? Why?
    - c. What are suitable methods for measuring, assessing, evaluating, and comparing knowledge in/for teaching mathematics at the secondary level? What are their strengths? What are their limitations? How are their validity and reliability addressed?
3. Connections between knowledge and practice of teaching mathematics at the secondary level:
    - a. What are the relevance and the contribution of advanced mathematics studies to secondary school mathematics teaching?
    - b. How are knowledge in/for teaching mathematics and teaching practice connected at the secondary level? To what extent are these connections related to cultural and societal factors?
    - c. How are knowledge in/for teaching mathematics and students' mathematics learning and achievements connected at the secondary level? To what extent are these connections linked to cultural and societal factors?

### **Invited contributions**

Michael Neubrand (Institut für Mathematik, Universität Oldenburg, Germany)  
Heather Hill (Harvard Graduate School of Education, USA)

### **Call for contributions**

We invite submission of contributions on the specific issues described above, focusing on secondary school mathematics (age 13 to 19). Each contribution should clearly and directly focus on one issue, addressing one or more of the questions associated with it. Please follow the guidelines and deadlines of the submission process outlined on the ICME-13 website: **[www.icme13.org](http://www.icme13.org)**