



ICMT /2017

**II International Conference on
Mathematics Textbook Research and Development**

**II Conferência Internacional em
Pesquisa e Desenvolvimento de Livros Didáticos de Matemática**

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Symposium A:

Textbook use by Teachers and Students – Results and Methods

Chairs: Sebastian Rezat (University of Paderborn) & Rudolf Sträßer (University of Giessen)

Textbooks offer opportunities to learn, which have to be put into practice by teachers and students. Teachers and students are seen as the two major users of textbooks. The textbook is the mediating artefact, which provides a link between the goals, the knowledge and the beliefs of teachers and students. Besides these teacher and student related variables textbook use is also influenced by additional social and cultural influences such as the influence of institutions, especially the school, the influence of peers, family and tutors as well as the one from those interested in mathematics education in general (the “noosphere” sensu Chevallard) and finally the influence of conventions, norms and the public image of mathematics (Rezat & Sträßer, 2012).

Previous research has identified the use of textbooks by teachers and students as the core unit of analysis in order to understand and measure the effects of textbooks on teaching and learning mathematics. The symposium in the frame of the International Conference on Mathematics Textbook Research and Development 2017 in Rio de Janeiro (Brazil) intends to summarize the state of the art of research into the use of traditional and electronic mathematics textbooks and related methods in order to develop future perspectives of this strand of research.

We call for papers on studies of textbook use and related influences and interrelations that focus on questions such as

1. How are traditional and interactive/digital mathematics textbooks used by teachers?
2. How is teachers' preparatory work influenced by mathematics textbooks?
3. How do teachers' goals, knowledge and beliefs guide teachers' adaptations of mathematics textbooks?
4. How is classroom instruction influenced by mathematics textbooks?
5. How is textbook use influenced by social and cultural aspects (as depicted in the bottom of the socio-didactical tetrahedron)?
6. How are traditional and interactive/digital mathematics textbooks used by students?
7. What are the effects of traditional or interactive/digital mathematics textbooks on students' learning?
8. What are the differences in students' learning activities/teachers' activities when working with traditional compared to interactive/digital textbooks?

Results from theoretical and empirical studies on the use of mathematics textbooks will be complemented by discussing methodological challenges of investigating the textbook in use and its effects on teachers and students. The use of interactive/digital textbooks may offer new methodological challenges and additional potentials in terms of research methodology. Consequently, the symposium can also provide space for the discussion of questions like

- M1): What are appropriate methods to investigate teachers' and/or students' use of mathematics textbooks?
- M2): How to investigate interactions and interrelations of students' and teachers' use of mathematics textbooks?
- M3): What about additional challenges and potentials when analysing the use of interactive/digital textbooks?

For comments and questions please contact Sebastian Rezat at srezat@math.upb.de or Rudolf Sträßer at Rudolf.Straesser@uni-giessen.de.

Please submit a paper abstract of maximum two pages until the 31st of October 2016.
For detailed information about formats and the submission process consult:

<http://www.sbm.org.br/icmt2/submissions/>.

References

- Rezat, Sebastian, and Rudolf Sträßer. 2012. "From the didactical triangle to the socio-didactical tetrahedron: artifacts as fundamental constituents of the didactical situation." *ZDM – The International Journal on Mathematics Education* 44 (5): 641-651. doi:10.1007/s11858-012-0448-4
- Rezat, Sebastian, & Rudolf Sträßer. 2015. "Methodological issues and challenges in research on mathematics textbooks." *Nordic Studies in Mathematics Education* 20 (3-4): 247-266.