

Methods of Textbook Research

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Abstract

Mathematics textbooks are complex and multifaceted objects. They contain different genres of texts, pictures, and tasks. They are usually aligned with an official curriculum. In presenting their mathematical content, textbooks mediate a certain vision of mathematics, they follow didactical approaches, pedagogical principles, and convey societal values and norms. Textbooks are used by teachers, students, parents, tutors, reformers, politicians with different intentions, for different goals, and in different ways. This use causes effects. In the first place, it affects instruction, learning and achievement. All this occurs in different social and cultural contexts and changes over time. Consequently, there are many different issues related to mathematics textbooks, their content, their development, their use, and their effects that can be subject to scientific research.

Therefore, mathematics textbooks and curriculum resources have been the object of research in mathematics education 1) themselves, 2) as depended variable, i.e. how they are affected by factors in their development and production, and 3) as independent variable, i.e. how they affect their use, teaching and learning mathematics and mathematics achievement (Fan, 2013; Rezat & Sträßer, 2015). Related to each of these three perspectives, particular qualitative and quantitative methods have been developed and applied in order to produce valid scientific insights into different aspects of textbooks and curriculum resources.

The workshop will provide an overview of methods applied in research on mathematics textbooks and curriculum resources systematized according to the three research perspectives mentioned above. These methods will be illustrated based on a sample of paradigmatic studies in each area. A particular focus will be put on the interdependency of research focus and question, theoretical framework, and methods. Advantages and shortcomings of different methodological approaches will be discussed.

References:

- Fan, L. (2013). Textbook research as scientific research: towards a common ground on issues and methods of research on mathematics textbooks. *ZDM–The International Journal on Mathematics Education*, 45(5), 765-777. doi:10.1007/s11858-013-0530-6.
- Rezat, S., & Sträßer, R. (2015). Methodological issues and challenges in research on mathematics textbooks. *Nordic Studies in Mathematics Education*, 20(3-4), 247-266.