

Topic Study Group No. 8: Teaching and Learning of Arithmetic and Number Systems (Focus on Primary Education)

Pi-Jen Lin, Terezinha Nunes, Shuhua An, Beatriz Vargas Dorneles and Elisabeth Rathgeb-Schnierer

The purpose of this TSG is to gather congress participants who are interested in research and development in the teaching and the learning of number systems and arithmetic through activities in and out of school. The mathematical domains include whole numbers, integers, ratio and proportion, and rational numbers as well as representations and problem solving using numbers related to each of these domains. We invited submission of research-based proposals for contributions to TSG 8 that could fall into (but are not bounded to) the following issues related to:

- Developing a deep understanding of arithmetic and number systems.
- Developing number sense in children as a foundation for learning arithmetic and flexibility with numbers and operations.
- Assessing conceptual or perceptual knowledge in learning arithmetic and number systems.
- Curriculum development and implementation, for instance, approaches to introducing numbers and comparative analysis of different curricula in one country or across countries.
- Instructional models and strategies for teaching arithmetic and number systems.
- Developing mathematics proficiency in teaching arithmetic and number systems.

Co-chairs: Pi-Jen Lin, Terezinha Nunes.

Team members: Shuhua An, Beatriz Vargas Dorneles, Elisabeth Rathgeb-Schnierer.

P.-J. Lin (✉)

National Hsinchu University of Education, Hsinchu City, Taiwan

e-mail: linpj@mail.nhcue.edu.tw

T. Nunes

University of Oxford, Oxford, UK

e-mail: terezinha.nunes@education.ox.ac.uk

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- Using of tools, such as technology, manipulatives, and children literature, etc. in teaching and learning number systems and arithmetic.
- Professional development and teacher education related to teaching arithmetic and number systems.
- Cultural tools and practices for the learning and teaching of arithmetic and number systems.

Three theoretical presentations on teaching and learning arithmetic and number systems provided the basis for discussion in each of the three 120-min slots. These were followed by presentations of empirical research that provide support, challenge or extend the theoretical frameworks. TSG participants were expected to stay with their group throughout the three sessions.

The first day started (chaired by Terezinha Nunes) with presentations by Verschaffel, Lieven; Nunes, Terezinha; Kheu, Natalie Ming Yeng; Torbeyns, Joke.

Our second conference TSG day was split in two rooms and talks were offered by: Rathgeb-Schnierer, Elisabeth; Hickendorff, Marian; Schulz, Andreas; McMullen, Jake; Dorneles, Beatriz Vargas; Chong, Yeog Ok; Koudogbo, Jeanne; Mamede, Ema.

Our third conference day was also split in two slots because there were so many excellent papers. Presentations were offered by Gaidoschik, Michael; An, Shuhua; Mizzi, Angel; Real Ortega, Carolina Rubi; Barros, Rossana; Hadi, Sutarto; Hsu, Wei-Min; Ghosh Hajra, Sayonita.

The last day of your TSG session day ended with papers by Lin, Pi-Jen; Vamvakoussi, Xenia; Rechtsteiner- Merz, Charlotte; Brown, Bruce.

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