TSG 5
THE TEACHING AND LEARNING OF ARITHMETIC AND NUMBER SYSTEMS (WITH A FOCUS ON PRIMARY EDUCATION)

The Organising Team

Chair: Judy Sayers, Stockholm University, Sweden

Cochair: Elisabeth Rathgeb-Schnierer, University of Kassel, Germany

Members:

Rose Griffiths, University of Leicester, UK

Beatriz Vargas Dorneles, Universidade Federal do Rio Grande do Sul, Brazil

Rui Ding, Northeast Normal University, China

Aims

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:

- research-based specifications of domain-specific goals,

- analysis of learning processes and learning outcomes in domain-specific learning environments and classroom cultures,

- new approaches to the design of meaningful and rich learning environments and assessments.

We warmly invite submissions of research-based proposals for contributions to TSG 5 that could fall into (but are not bounded by) the following issues:

- Developing a deep understanding of arithmetic and number systems.

- Developing number sense in children as a foundation for learning arithmetic

- Developing flexibility in mental calculation

- 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.

- Using tools, such as technology, manipulatives, and children's literature, 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.

The TSG will organize the session slots into three theoretical themes on teaching and learning arithmetic and number systems which will provide the basis for discussion focus in each of regular slots. These will be followed by presentations of empirical research that provides support, challenges or extends the theoretical frameworks. The TSG presentations will be organised into either 90-minute or shorter 60-minutes, and poster presentations of 60 minutes. TSG participants are expected to stay with their group throughout the three sessions.