TSG 36   Task design, analysis and learning environments

Co-chairs:
Jiansheng Bao (China)   jsbao@math.ecnu.edu.cn
Jere Confrey (USA)   jconfre@ncsu.edu

Team members:
Jonei Barbosa (Brazil)
Helmut Linneweber-Lammerskitten (Switzerland)
Anne Watson (UK)

IPC Liaison Person: Susanne Prediger (Germany)

A critical topic in mathematics education is the design and analysis of open-ended, realistic tasks, tasks and their variants designed to focus a learner on particular properties and relationships, and sequences of tasks within digital and non-digital environments. TSG 35 of ICME-13 in Hamburg, Germany, will bring together researchers, developers and teachers who systematically investigate and develop theoretical and practical accounts of task design and learning environments. We welcome proposals from both researchers and practitioners and encourage contributions from all countries. During four sessions, we will have four invited speakers for 30 minute presentations, a panel, and a selected set of submitted presentations. Confirmed speakers include Koeno Gravemeijer (the Netherlands), Kazuhiko Nunokawa (Japan) and Angelika Kulberg, (Sweden) and Celia Hoyles, the London Institute. We seek empirically grounded contributions that underlie design principles, theoretical approaches, and carefully analyzed cases and examples of tasks designed for promoting mathematical development and maintaining cognitive challenge in traditional and contemporary environments. We plan to discuss (but are not limited to):

- Theoretical and practical development that guides task design and analysis, especially as they support higher-order mathematical thinking,

- Methodological advances and related studies of interactions among students and teachers around tasks as carefully designed tasks are enacted in learning environments,
- Diverse practical traditions/approaches that guide task design/analysis such as how tasks are designed in PISA or TIMSS,
- Design, implementation, and analysis of digital environments, including tasks and learning environments, such as on-line projects, games,
- Description and evaluation of non-traditional learning environments including virtual classrooms, informal learning contexts, and web-based resources,
- Study of mathematical learning over time using tasks sequences and forms of discourse,
- Development of learning outcomes from tasks including effects on identity, engagement, participation and motivation, and
- Critical literature studies, syntheses, or meta-analysis of task design and analysis

The group welcomes contributions from primary or secondary education.