

CERME 12: Thematic Working Group 17

Theoretical Perspectives and Approaches in Mathematics Education Research

Leader: Angelika Bikner-Ahsbals, (Germany), bikner@math.uni-bremen.de,

Co-leaders: Heather Johnson (USA), Anna Shvarts (Netherlands/Russia); Abdel Seidouvy (Sweden/Togo) YR

Scope and focus of the Working Group

Theories are an important part of each scientific discipline. The CERME working group TWG 17 has focused on the question of how to work with theories, including those specific to and extending beyond the field of mathematics education. A key focus concerns strategies of coordinating multiple theoretical approaches as researchers aim to solve problems in the field and better understand the complexity of teaching and learning mathematics. A networking theories methodology has been developed in previous TWG17s, supporting researchers' endeavor to navigate a variety of epistemological stances that may underlie the different theories. In CERME 12, we intend to deal with the questions raised over the last decade and new questions emerging from contemporary situations. First, we explicitly link theoretical interconnections with methodology—the logic of how researchers' methods lead to warranted claims. Theoretical progress generally implies a rethinking of research methodologies. In turn, new methodological approaches and techniques can promote theory development. E.g. in embodied cognition research, new theoretical insights led to the development of new methods for data collection and analysis (e.g. eye-tracking). Research in classroom laboratories or online communities are furthering researchers' theorizing of teaching-learning cultures. Second, we make ethical considerations of theories and their networking explicit. We call for attention to ontological, epistemological and axiological presumptions of theories and ask, how do researchers make decisions regarding theoretical approaches, specifically with respect to transforming vs. depicting mathematics education processes?

Call for papers and poster proposals

We invite researchers to submit papers (8 pages maximum) and poster proposals (2 pages) on the subsequent issues addressing one or more aspects from the list below (in an explicit manner). In order to avoid resting on an abstract level we specifically welcome papers presenting concrete research, for example (case) studies **offering data or concrete descriptions to be discussed**. Topics include but are not limited to:

- Ethical considerations in using specific theories when researching a phenomenon
- Re-invention of existing theoretical approaches with respect to contemporary situations
- Principles of adapting and interlinking theories to methodologies, and vice versa.
- The epistemological, ontological and axiological dimension in theory and/or methodology.
- Specific theories for research on technology use, embodiment, collaboration & communication, etc.
- Tension between depiction and transformation in theorizing, e.g. design research, critical theory
- Conditions for a productive dialogue between theorists, e.g. boundary crossing, theory networking.
- We also welcome proposals that address other relevant aspects of the overall topic.

Papers and poster proposals should use the CERME template, and conform to the guidelines at www.cerme12.it CERME 12 uses an electronic submission system www.conftool.pro/cerme12 The authors submit the initial version of their paper on the website (uploading it both as a .doc and a .pdf file, and providing the required information, in particular the TWG number).

Reviews and decisions

Each paper will be peer-reviewed by two persons from among those who submit papers to this TWG. Please expect to be asked to review up to two papers. The group leaders will decide about the acceptance of posters.

Important dates

- **15th July 2021:** Deadline for [Early Bird Procedure](#)
- **15th September 2021:** Deadline for submission of papers and posters.
- **4th November 2021:** Preliminary decisions on papers.
- **12th November 2021:** Preliminary decisions on posters.
- **2nd - 6th February 2022:** CERME 12 takes place.
- See www.cerme12.it/deadlines/ for other important dates