



TSG 21 Mathematical applications and modelling in the teaching and learning of mathematics

Co-chairs:

Jussara Araújo (Brazil)

jussara.loiola@gmail.com

Gloria Stillman (Australia)

gloria.stillman@acu.edu.au

Team members:

Morten Blomhøj (Denmark)

Dominik Leiss (Germany)

Toshikazu Ikeda (Japan)

IPC Liaison person: George Ekol (Uganda)

The importance of applications and modelling in mathematics education has been growing during the last decades. In particular, firstly at the ICMEs with their regular working or topic groups and lectures on applications and modelling, and secondly in the series of ICTMAs which have been held biennially since 1983. ICME Proceedings and Survey Lectures indicate the state-of-the-art at the relevant time and contain many examples, studies, conceptual contributions and resources addressing the relation between the real world and mathematics, as do the books in the ICTMA Series. Additionally, the published volume from an ICMI study showed a variety of topics related to modelling bringing together authors from different countries around the world.

This increasing interest is a consequence of an increasing number of (empirical) research projects which focus on special aspects of applications and modelling as well as the number of (inter)national comparative studies. For example, in the theoretical framework of the series of OECD PISA studies, relations between the real world and mathematics are at the centre of mathematical literacy.

This Topics Study Group on “Mathematical applications and Modelling in the teaching and learning of mathematics” takes into account the importance of relations between mathematics and the real world as well as the contemporary state of the educational debate in research and development in this field. All participants including well-known scholars and young researchers will have an opportunity to reflect on, and discuss, issues and themes concerned with mathematical applications and

modelling in the teaching and learning of mathematics. This includes but is not limited to:

- fulfilment of educational goals by curriculum,
- the role and nature of mathematical models in society from a mathematics education view point,
- evaluation of teaching resources including technology use,
- experimental research,
- pedagogy of modelling,
- assessment
- teacher education
- professional learning.

The TSG21 team will be preparing a pre-conference *Essential* publication that will describe the state-of-the-art of this TSG in advance. The published *Essential* will be available to all participants in this TSG and will be the basis for our discussions in this TSG on the topics identified above for which we have received submissions of interest.

Post conference we will be exploring the possibility of a Special Issue of a quality journal.