Topic Study Group 5.2: Mathematical literacy

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Team details*

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Overview

TSG 5.2 aims to gather participants interested in exchanging views, experiences, projects, analyses, and outcomes related to the meaning, place and role of mathematical literacy and related notions and terminologies (e.g., numeracy; financial/quantitative/statistical literacies; quantitative techniques) in the practice, research and development of mathematics education at all school levels (including pre-school and vocational training settings).

For purposes of framing the scope and activities of this TSG, Mathematical literacy refers to the usefulness of, ability to use or apply, mathematics ideas in different life contexts, and for a range of purposes, including personal and economic empowerment, civic participation, critical citizenship, social justice, sustainability, climate change etc.

* *Team details correct at time of print; 28 April 2023*

An intended outcome for this TSG is to collate a comprehensive overview of historical and current theoretical and empirical debates of notions, enactments and impacts of this domain on students' learning experiences.

Areas of interest

We will focus on four interrelated themes. These themes weave together collectively to support an understanding of the different ways mathematical literacy is conceptualised and enacted, theoretical ideas that underpin mathematical literacy, research about how those enactments are experienced and related impacts, together with considerations for future developments of this domain.

1. Enactments of mathematical literacy

This theme will support understanding of what mathematical literacy is and the scope of its domain.

- What are the specific focuses and topics that characterize the notion of mathematical literacy?
- How does the notion of mathematical competency relate to mathematical literacy?
- In what ways is mathematics – via a mathematical literacy frame – able to address the challenges that people encounter in their daily lives?
- What is the role of context of mathematics in mathematical literacy?
- Whose contexts and why?
- Should mathematical literacy be directly taught, or be integrated across curriculum subjects, and how? Or can it emerge as a by-product of teaching "regular or mainstream" mathematics?
- How does mathematical literacy respond to sustainability issues and goals?
- What is the role of mathematical literacy in facilitating a social justice agenda?

2. Theories of mathematical literacy

This theme will support understanding of theoretical underpinnings of this domain.

- What theories, conceptual models, and methodologies can be useful to understand issues related to the enactment, practice or research in mathematical literacy?

3. What can research tell us about the enactment, teaching and learning of mathematical literacy?

This theme will support understanding of how different enactments of mathematical literacy occur and the impacts of these.

- What do empirical results from large- and small-scale studies indicate to inform our thinking about the conceptualisation, teaching, learning, or assessment of mathematical literacy?
- How are notions of mathematical literacy figured into curricula, and in teachers' identities, beliefs, attitudes and practices, in teacher education, in learning materials, in local/national assessments, etc.?
- What impacts do enactments of mathematical literacy have on students' learning, competencies, attitudes, engagement, life-preparedness, etc.?

4. Future developments of mathematical literacy

This theme will consider if adapted or different enactments of mathematical literacy are needed to respond to evolving global challenges in mathematics education and in the wider world environment.

- What new types of initiatives, policies, or collaborations (across subject areas, outside schools) are needed?
- What are potential gains/losses with possible initiatives?
- What barriers might we have to overcome?
- What new areas of research are needed?

How to make a submission to this Topic Study Group

Submissions for Topic Study Group Papers and proposals for Posters open 28 April 2023 via the official ICME-15 website, icme15.org. The website also contains a timeline of dates for the activity of the Topic Study Groups in the lead up to the Congress.

For questions about this TSG, please contact the Co-Chairs using the email addresses provided.