# Topic Study Group 3.14: Research and development in assessment in mathematics education

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## Team details

### Co-Chairs

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## Overview

TSG 3.14 provides a forum to share and discuss research and development in the field of Assessment in Mathematics Education at different levels and instructional processes.

As teachers, practitioners, academics and researchers it is our prime responsibility to conceptualise, debate and formulate learning and assessment systems that prepare our future generations for opportunities and challenges which they may encounter. Assessment is a wide-ranging, multidimensional and vital process integral to teaching and learning. The purposes of assessment can be summarized as being formative, directed at the improvement of teaching and learning, and summative, where the focus is on evaluation of current proficiency, comparability, or evaluating the functioning of an education system as a whole. Various types and formats of assessment support

these purposes. Each type of assessment with a well-defined purpose provides specific and useful information to improve standards and quality of teaching and learning. Also, this specific and useful information is beneficial for the purpose of research.

In classroom-based assessment, the interactive teaching, learning and assessment cycle is managed by the teacher; from the perspective of policies, procedures and norms of institutes or the state. The assessment cycle may be specifically formulated for the particular cohort of students. .

In the 21st century, we have seen new trends and developments in the field of mathematics assessment, including the assessment of the set of skills which encompass creativity, collaboration, communication and problem solving. New models have been introduced, many of which have encompassed computer-based testing. Also in this century the use of Item Response Theory and Rasch Measurement Theory has influenced the design of tests, and the analysis and interpretation of results.

# Areas of interest

We invite research based contributions on the recent trends and developments in the field of mathematics assessment which caters to the needs of the 21st century. The papers and posters and associated presentations and discussions should be such that they are beneficial, communicable and accessible to all the stakeholders, will inform a range of assessment practices, and therefore will contribute to making the teaching and learning of mathematics meaningful. Papers and posters may report a particular assessment topic or theme, a report on an empirical study, an exposition of a particular assessment practice, or a reflection on classroom-based assessment.

Contributions could report studies covering (but not limited to) the following themes:

- Theoretical, philosophical and ethical perspectives and debates concerning the assessment of mathematics proficiency.
- Alternative perspectives, models and practices of assessment.
- Classroom based assessment (formal or informal assessment).
- Teachers and assessment. What is the role of the teacher in relation to classroom-based assessment? How does the phenomenon of “teaching to the test” play out in various contexts?
- Students and assessment. How do different types of assessment affect student learning and motivation? What is the role of feedback in the learner’s life? What is the impact of standardized assessments on learning?

- What to assess? How is a cognitive focus or cognitive development focus accommodated in an assessment program? How is extended problem solving assessed?
- Assessment design, construction and administration (theoretical, technical and practical components). How do the underlying assumptions of classical test theory, item response theory and Rasch measurement theory affect the design of testing items and programs?
- Technology and computer-based assessment
- Validity and reliability: whether or not a test may report dimensions and types of validity and reliability

# 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.