



TSG 42

RESEARCH AND DEVELOPMENT IN ASSESSMENT IN MATHEMATICS EDUCATION

The Organizing Team

Chair: Abid Sohail, Aga Khan University Examination Board Karachi, Pakistan

Co-chair: Caroline Long, University of Johannesburg, South Africa

Team Members:

Nathalie Sayac, University of Paris-Est Créteil, France

Shai Olsher, University of Haifa, Israel

Xiong Wang, University of Alberta, Canada

TSG 42 provides a forum to share and discuss research and development in the field of **Assessment in Mathematics Education**.

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 the institutes or states. The assessment cycle may be specifically formulated for the particular cohort of students. In large-scale assessment, this cycle is somewhat extended and generalized to reflect the perspectives and processes which are applicable across countries rather than specific to a certain context. Large-scale assessments have the potential to provide comparative information about a country's curriculum and teaching practices generally. The purpose of such assessments, the design and development of instruments and the interpretation of results are factors which affect individual countries and

influence internal assessment practices.

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.

We invite research based on the recent trends and developments in the field of mathematics assessment which caters to the needs of the 21st century. The research papers, 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. The papers 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? What is the impact of high-stakes 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 learner’s life? What is the impact of standardised assessments on learning?
- What to test? How is a cognitive focus or cognitive development focus accommodated in a testing programme? How is extended problem solving assessed?
- Test 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 programmes?
- Technology and computer-based assessment.
- Large scale assessment (perspectives, benefits and limitations)
- Validity and reliability: whether or not a test may report dimensions and types of validity and reliability