Topic Study Group 2.6: Mathematics education in under-resourced contexts

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Overview

ICME conferences in the past have focused on issues of equity and inclusion and have been very fruitful in providing a platform to discuss research from diverse contexts across the world. Various TSG groups have focused on issues of equity and Inclusion in the past. In TSG 2.6 at ICME-15 we highlight the need to focus on understanding the contexts and the learning environment which shape the teaching and learning of mathematics, especially in under-resourced contexts. Under-resourced contexts and schools have historically been cast in deficit lenses and characterised by their challenges or shortcomings. These contexts can exist in low-income countries or even in high-income countries where there is an unavailability of resources due to funding, deployment issues, lack of professional development or a human resource issue.

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Mathematics education research needs to desist from narrow and intransigent perceptions of under-resourced contexts, to enable the recognition of the context-dependent assets and possibilities of these areas and schools. The under-resourced schooling contexts can be transformative, as they can affect the motivation of teachers, learners and other stakeholders as well as change their behaviour. Thus, it is necessary to avoid static definitions of under-resourced contexts that obligate us in this TSG to advocate for dynamic and generative approaches to understanding under-resourced contexts and mathematics learning and teaching. Mathematics education research has historically focused much more on well-resourced contexts, promulgating 'solutions' that are sometimes misconceived in relation to the realities of context and culture in under-resourced contexts. With ongoing disparities of access and success in mathematics, more attention is needed in mathematics education research to describe the contexts, innovations and adaptations required to address teaching and learning in under-resourced contexts without falling into deficit perspectives.

TSG 2.6 aims to:

- Develop an understanding of what kinds of under-resourced contexts exist and what kind of challenges are faced by teachers and learners in these contexts for learning mathematics.
- Understand the intersectionality of how these resources are available or absent in under-resourced contexts and how it influences mathematics teaching and learning.
- Expand the horizon of discourse around under-resourced contexts to include the innovations, collaborations, innovative teaching and innovative use of available resources in these under-resourced contexts by different agents of change.
- Identify the agents of change.
- Analyse the methodologies adopted to research under-resourced contexts.

Many research and reform efforts in mathematics education have addressed one or more of three primary concerns: content — what mathematics learners should learn; quality — who is qualified to teach mathematics; and pedagogy — how learners should be taught mathematics. The question of concern here is at the intersection of content, quality, and pedagogy in under-resourced contexts. That is, how are under-resourced contexts working to ensure that learners have access to high-quality mathematics content; how are under-resourced contexts addressing access to qualified mathematics teaching; and what are the innovative ways under-resourced contexts are addressing pedagogy? Underlying these questions is the role of policy decisions and policy enactment impacting under-resourced communities. We must consider the impact of governmental, local, and institutional policies impacting mathematics teaching and learning. In what ways are policies disadvantageous and/or advantageous for under-resourced contexts?

Areas of interest

TSG 2.6 is conceptualised as a space in which papers and posters from diverse contexts focus on issues related to all aspects of mathematics teaching, learning, curricula and policy in under-resourced contexts, and the possibilities and challenges that under-resource contexts present. The possibility of a post-conference publication will be discussed during the TSG sessions.

Concerns and questions that TSG2.6 seeks to foreground include:

1. What is the nature of the existing under-resourced contexts? How does the intersectionality of the non-availability of certain resources shape teaching and learning mathematics in under-resourced contexts?
2. What kind of adaptations and innovations have worked in under-resourced contexts and what has not worked? What challenges constrain success and what facilitates it? What can we learn from the experience of working in under-resourced contexts to design scaled interventions that work in such contexts?
3. What kind of collaborations and negotiations are required to support teachers working in under-resourced contexts?
4. What are under-resourced contexts doing to recruit and retain teachers of mathematics? What motivates teachers working in these contexts to adopt and adapt resources to address learning mathematics in under-resourced contexts?
5. What role does policy play in under-resourced contexts to support or constrain the actions and actors struggling to address the learning in these contexts?
6. What pedagogical approaches do teachers in under-resourced contexts use to be pedagogically responsive?

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.