



TSG 5 Activities for, and research on, students with special needs

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Psychological and clinical research has a long tradition examining cognitive, sensorial and affective difficulties in mathematics, and students with mathematical learning difficulties may require extensive additional teacher resources, curricular adaptation or specific materials. From this starting point, our study group will examine a research-based and practice-based agenda focused on the challenges of inclusive mathematics education. The two core ideas we want to consider are:

1. Teaching mathematics to students with special needs can be a challenging, innovative, and rewarding experience. Importantly, many of the successful strategies identified for working with students with special needs are also useful and effective for all students. We would like to explore the nature of low-attaining pupils' experience in the classroom, and the ways in which the teacher can support a student, or inadvertently prevent them from making progress. This will include examining the development of formative assessments and effective instructional interventions.
2. Inclusion policies and research studies lead us to wonder what kind of education we can provide to prospective and practising teachers, to help them meet the diverse needs of a classroom where there is a wide range of student attainment and abilities, including students with special needs.

These two ideas serve as a point of departure for a call for participation in this topic study group. Our discussions will draw upon the work of the ICME Survey Team, "Assistance of students with mathematical learning difficulties – How can research support practice?" Our four sessions will be organized in a way that encourages and supports a healthy debate and includes the description of interesting practices, discussion of meaningful initial research projects and presentation of formal research results.

Our topic is a complex one, and we acknowledge that there are many differences of opinion about the causes of difficulties in mathematics, and issues around how we define and use terms such as 'inclusion' and 'special needs'. We want to examine the barriers that prevent children from successfully learning mathematics. These may have been identified as sensory and physical difficulties, cognition & learning difficulties, or emotional and behavioral difficulties. There may also be difficulties that have arisen through disrupted or unsatisfactory educational experiences, perhaps linked with illness or trauma. Our interest is in finding ways of improving these situations, to give children the best chance of making greater progress.

Whilst our major focus will be on classroom approaches, we are also interested in considering the contribution of home and family to a child's mathematical experience, and would like to explore ways in which this might be strengthened by positive links with school.

We welcome contributions to our TSG in one of these three formats:

CASE STUDIES AND EXAMPLES OF CLASSROOM PRACTICE:

Short snapshots of teaching and learning practices (videos or descriptions of real classroom episodes) will be welcome to illustrate important ideas for discussion, or to pose questions about issues that concern us.

POSTERS:

Posters can be useful to outline an initial or ongoing research project, or a new teaching programme. We will provide an opportunity for accepted posters to be presented to and discussed by a group of participants.

RESEARCH REPORTS:

This format will allow experienced researchers to present their current work, and will give time for questions and discussion. Reports should state critically what is new in the research, how it builds on past research, and how it has developed new directions and pathways to enhance the mathematical learning of students with special needs.

With the aim of going beyond the content of the presented papers, some key ideas for further research or ideas which nurture the relationship between research and practice will be discussed in a round table.