

The International Congress on Mathematical Education in 2008

- A task for the Nordic countries?

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At the International Congress of Mathematicians in Berlin in August last year, a new ICMI (International Commission on Mathematical Instruction) was elected. The new president is Hyman Bass from USA and the new secretary is Bernard Hodgson from Canada. It is with some regret that we observe that the Nordic countries are not represented in the new ICMI, especially since we can look back at some interesting years when we had Mogens Niss as secretary of ICMI.

We are, however, optimistic of the future. Because of the development in our countries concerning mathematics education, we will be active at the international scene. Relating to this, is the thought that perhaps we in the Nordic countries, could work together to organise an International Congress on Mathematical Education (ICME) in the not too distant future. In the year 2000 ICME will be arranged in Japan and it is likely that in 2004 it will take place in South America, possibly Brazil? However, as far as the editors know, there are no concrete plans for where the ICME in 2008 will be held.

To arrange such a congress is a major undertaking, and would demand a large effort from many persons. With possibly more than 3000 participants there would of course be necessary with professional assistance and a large budget for the congress. If it is going to be held in one of the Nordic countries it will most probably be a joint undertaking.

Considering the number of people active in mathematics education and the resources available in our countries, it should not be an impossible task. It should also be noted that arranging large congresses are done all the time in our part of the world. So why not try to do this also in mathematics education?

What could the benefits be in arranging such a congress? The attention of the mathematics education community would for some time focused on the Nordic countries. Our type of mathematics education would be well known around the world. Many of us believe that our type of education have qualities that should be known by others. In arranging such a congress, new international contacts would be made and old contacts strengthened.

The most important effects, however, would probably be within each of the Nordic countries. Mathematics education would be much focused in the media. The general public and the politicians would know that there is such a thing as mathematics education, and hopefully learn about the importance of the subject. Also there would be a strengthened co-operation between groups and milieus in our part of the world.

There is of course some competition between groups and milieus in our countries, but we think that all would benefit from such a joint undertaking. There are many questions to be discussed, for instance location. We will not enter that discussion here, but only note that there could be several candidates for a possible location. We think, however, that there should be agreement concerning the location early in the process.

The year 2008 might seem be a long time into the future, but looking a little closer at the calendar will show that actions should be taken soon if we want to pursuit this idea. Plans and prospects of the congress should be ready some time before the congress in 2004, where possibly the final decision would be made by ICMI. Also it would be desirable that some signals could be given to ICMI during the congress in Japan **next** year.

As in most cases, one of the most important issues would be to get such a process started. We would, as a preliminary step, ask our readers to react to their national representatives of the editorial committee of NOMAD: Is this idea something that we should try?

This combined issue of No 3 and 4 of Volume 6 of NOMAD contains four main articles. *Malcolm Swan* reports on a two-year investigation into strategies for learning mathematics by low-attaining students in Further Education in England. The study is focused around five types of reflective learning activities and learning outcomes are also analysed in relation to teacher beliefs. The creative activities applied showed considerable potential to improve the quality of reflection and analysis of notations, concepts and problem structures. The author points out that the 'face validity' of the activities is not immediately evident to teachers and students when preparation for an examination which rewards fluency rather than creativity. In the second year of the study, the classes belonging to the "connectionist" teachers made greater and more consistent gains than the classes belonging to the "transmission" teachers.

In the second article: Computer support for teaching decimal numbers using a diagnostic teaching approach, *Anne Berit Fuglestad* describe how different kinds of software were used by students of age 10 - 14 year in mathematics teaching. This research focus at investigating students' understanding of decimal

numbers, using a diagnostic teaching approach utilising spreadsheet tasks to stimulate investigations and conflict discussions. Classroom observations confirmed that students' misconceptions were revealed and provoked discussions amongst the students as they worked on the spreadsheet tasks. The test results indicate that computer group improved significantly more than the control group on part of the test, with the largest effect from the 'high' spreadsheet users.

In the third article of this issue, *Gloria Stillman* reports on a study, which investigates the impact of engagement with the task context by upper secondary students on their performance on applications tasks. In addition teacher beliefs about the effects of students' engagement with task context is studied. She found that moderate to high engagement with a task context was not often associated with poor performance. Poor performance was more likely to be associated with no to low engagement. Amongst the teachers interviewed, there was support for the following categories of beliefs:

- students' preferred degree of contextualisation determines whether success is accompanied by engagement with the task context
- if the mathematics is not integrated with the task context, students will not engage with the context and will develop the habit of ignoring it
- if the two are integrated, students will engage with the task context
- the setting of tasks where the context transcends reality is problematic.

The fourth article by *Frank Lester* is different from the other main articles in this issue as its main focus is on the relevance of research reported in journals to practising teachers. It is a revised and abbreviated version of a paper presented at the plenary session at the research pre-session of the annual meeting of the National Council of Teachers of Mathematics in 1996. It has also been presented at the annual conference of the National Association for Research on Teaching Mathematics and Science, Vaasa, Finland in 1998. As editor of the *Journal for Research in Mathematics Education (JRME)*, Frank Lester observed numerous instances of an apparent «failure to establish communication.» He points out that many of these instances were due in large part to the lack of shared principles among researchers regarding such fundamental matters as what counts as research, the role of justification, what counts as evidence, and the place of background assumptions and beliefs in the research process. An even more serious communication gap exists between researchers and teachers, teacher educators, and other educational practitioners. The article discusses the breakdown in communication between researchers and educational practitioners and makes some suggestions about how to change this unfortunate and unnecessary state of affairs. We find that the discussion of this topic is highly relevant to the editors, researchers and the readers of NOMAD.