The review process and the role of NOMAD in the Nordic mathematics education community

In recent months NOMAD has received many new submissions from Nordic researchers. This is a very promising development that leaves us with good prospects for promoting the main aim of NOMAD, namely to stimulate, support and foster the work of Nordic researchers and postgraduate students in mathematics education, and to develop mathematics education and teacher education in theory and practice at all levels of the educational system. Most important is of course that NOMAD is a channel for Nordic researchers, in a broad sense, for publishing research and development papers in a scholarly scientific journal. The review process is another way which NOMAD can contribute to the development of mathematics education in the Nordic countries, in particular as regards supporting new researchers entering our field.

When a paper has been submitted to NOMAD (via nomad@ncm.gu.se) the editors have a first reading of it in order to decide whether or not the paper is relevant for NOMAD and of sufficient quality to go through the review process. If so, the editors choose two researchers with expertise within the area of the paper to make reviews. The guidelines for the reviews can be found at our web site: www.ncm.gu.se. The reviews are produced anonymously. Based on the two reviews the editors decide which of the following four categories the paper should be placed in:

1 The paper can be published as it is (which is very rarely the case).

2 The paper can be published after it has been improved in accordance with the editors' recommendations in the review report given to the author(s). During the process of revision the author(s) correspond(s) with one of the editors in order to improve the paper. Often several versions of the paper are sent back and forth.

3 The paper has to be revised according to the recommendations in the review report, and the new version of the paper has to be submitted through a new review process.

4 The paper is rejected and the author(s) receive(s) no recommendation to send in a revised version of the paper (this, too, is very rarely the case).

This review process, which is very similar to what can be found in other research journals, is an extensive process, often running between half a year and one year. The quality of this process is of course strongly depending on the work of the reviewers and the editors.

During our short period as editors we have already experienced a great willingness in the Nordic community to act as a reviewer for NOMAD. In addition to the group of more experienced researchers some of the newly graduated doctors have acted as reviewers, and others have expressed their interest in making reviews. Allowing young researchers to gain experience as a reviewer is another way in which NOMAD can contribute to developing the Nordic communities. We are very happy about this evolution and we encourage young researchers to contact the editors, if they would like to write reviews for NOMAD. Occasionally we will bring the list of reviewers in NOMAD, thus acknowledging their important contribution to the journal.

In the report in this issue of the activities in the Nordic Graduate School of Mathematics Education (NoGSME) you will find a short account of the discussion on NOMAD's review process at a recently held seminar for supervisors. Based on this discussion we have decided that the editors' final review report, sent to the author(s), should also be sent to the two reviewers. In this way the reviewers will learn about the editors' decision and get some feed back on their work. Besides, this opens for critique of the editors' work. At the same seminar it was also decided that NoGSME should organise a seminar for reviewers with the aim of discussing and furthering the quality of the review process.

Of course a sufficient inflow of submissions is a prerequisite for securing the quality of the review process and of the journal at the end of the day. Therefore, we are very pleased with the latest increase in the number of submissions. This enables us to operate with a longer turn-over time in the review process, thus giving better opportunities to secure the quality of the process and eventually in the papers published. However, regularity still has to be given top priority by the editorship. Since also this issue is behind schedule (even though only by one month) regularity remains something we have to strive to achieve.

About this issue

In this issue we publish three quite large papers focusing on different aspects of secondary mathematics teaching and learning. The first paper by Monica Johansson is based on the author's recently defended doctoral thesis: *Teaching mathematics with textbooks – A classroom and curricular perspective*. Starting from the solid findings in many studies that the textbook plays a key role in determining both the content and the organisation of mathematics teaching, Monica Johansson investigates how the textbook is seen and used by three teachers as an instrument for their teaching of mathematics for eight graders. It is a qualitative study with an extensive empirical basis consisting of teacher interviews and questionnaires, and video-recorded classroom observations. The analyses allow specifying in great details to which degree, and how, the three teachers rely on the textbook. It is argued that the textbook is an indispensable means for the teaching of mathematics – at least for most teachers. These findings call for further research on the potentials and limitations of textbook presentation of different mathematical topics.

The second paper by Eugenia Koleza and Elisabeth Kabani investigates lower secondary students' reasoning in relation to geometrical problem solving involving constructions of isosceles triangles. The empirical basis consists of extensive qualitative studies of twenty 10^{th} grade students' work on geometrical construction for one year! Based on analyses of the students' problem solving activities, of which the paper gives clear accounts, three forms of reasoning are identified and described, namely: visual, heuristic and theoretical reasoning. Together with a distinction between the type of evidence used as ground for the reasoning and the reasoning process itself; this categorization captures the students' reasoning in relation to geometrical problem solving. From the point of view of developing teaching practice the findings may be helpful for teachers in recognising their students' modes of reasoning and in finding ways to support and challenge the students as they develop their competence.

The last paper by Jill Brown and Gloria Stillman investigates upper secondary students' use of graphing calculators in relation to the problem of drawing a complete graph of a complicated cubic function. The empirical basis of this study is qualitative analyses of five pairs of students' working on such a problem. In this context the graphing calculator can both be an effective instrument for the students and an artefact which distracts their attention away from the mathematical features of the problem. The paper describes how the analysis has led to the proposal of the concept of a *defining moment* as a way to describe and understand how the students' activity develops on the basis of how they use the calculator. A number of *defining moments* are identified in the students' work and two

of them, "Use of scale marks" and "Identification of key function features" are analysed in great detail. It is very interesting to see how the students' use of the different features of the calculator and their interpretations of its output is interwoven with their conceptual understanding of the underlying mathematics.

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