

Continued activities for the Nordic Graduate School

The sixth seminar for supervisors and new doctors

During two days in the beginning of October, twenty-two supervisors and new doctors were gathered in Magleås in Denmark for a seminar. Participants from seven countries took part. The theme this time was how to develop oneself to become a good supervisor. The role of NOMAD as a support for new doctors in their academic career was discussed. Some of the questions that were analysed were: How can NOMAD contribute to the fostering of new researchers in mathematics education in the Nordic countries? Which types of activities could be fruitful to support the interplay between NOMAD and doctoral programmes in mathematics education? What can be done to ensure the scientific quality and relevance of NOMAD? What could be interesting thematic issues in NOMAD? One suggestion was that a future seminar could offer a programme, where authentic review reports of journal papers were analysed and discussed. Some international journals share the review reports of a paper with all the reviewers of the paper and this was indicated to be a strong learning process in developing a constructive reviewer of papers. Such a competence of a supervisor was considered fruitful for the doctoral students. This suggestion can be used at one of the seminars in spring 2007. Another issue at the seminar was courses for supervisors at different universities. As examples were used the courses in Linköping University and Luleå University of Technology. They both have similarities in taking up questions as the regulations for doctoral education, financing of research, equity issues, ethics in research, demands and levels for doctoral examination, models of supervision, and the relation between supervisor and doctoral student.

Episodes in supervision

All participants were invited to write down and share with others a crucial episode in supervision, which one had experienced as supervisor or doctoral student. Starting points were two episodes from the book *Handledning av doktorander* by Jitka Lindén at Lund University. There were in all nine different episodes to analyse and discuss. Many different questions of general character were raised based on the episodes. The discussion touched upon for example if the supervisor should publish together with the doctoral student. Some of the arguments in favour of this viewpoint were that it could actually help to raise the willingness to read the paper, and it can be an appropriate way to give credit to the supervisor for the work of supervision, which is otherwise not visible as an academic

reward. If a doctoral student has difficulties with the writing process, a co-writing experience with the supervisor might help. The case must always be that the supervisor is a real co-writer of the paper. Other interesting issues were how to manage the delicate balance between patient waiting and setting demands, how to assist in the writing process, and how to support the doctoral student in taking responsibility for her/his own work. The discussions were based on five ethical principles presented in the book by Jitka Lindén, and which she claims are part of the ethical code for many professions.

Three new dissertations in mathematics education

At Ålborg University *Lene Østergaard Johansen* defended her thesis "Hvorfor skal voksne tilbydes undervisning i matematik? – en diskursanalytisk tilgang til begrundelsesproblemet" (Why should adults be offered teaching in mathematics? – a discourse-analytical approach to the problem of justification). She claims that justification for mathematics teaching is rarely explicit and only on specific events can we get access to the real reasons for why a group of students is offered mathematics. She has chosen to answer the question by analysing the development of preparatory mathematics teaching for adults (FVU), which was introduced through a Danish reform in 1999. Lene differs analytically between three discourses: The political discourse, The planning of teaching persons' discourse and The mathematics teachers' discourse. In her thesis, she develops a framework for analysing the explicit and implicit justifications. Although there are common explicit justifications in the system, her analysis shows that there are conflicting implicit justifications. These conflicting justifications build upon different view of human beings, different views of mathematics knowledge and skills and of mathematics learning.

Kirsti Hemmi at Stockholm University defended her thesis "Approaching proof in a community of mathematical practice". Her aim is to describe how students encounter proof in a community of mathematical practice at a mathematics department and how they are drawn to share mathematicians' views and knowledge of proof. She tries to combine socio-cultural theories, social practice theories and theories about proof into a framework for understanding and describing the diversity of the culture which involves the complex notion of proof. Students felt that they were confronted with proofs from the beginning of their studies. Proof was there as a mysterious artefact and many aspects of proof remained invisible for the students when they struggled to find out what a proof is and to understand its role and meaning in the practice. The first

oral examination in proof seems to be significant in drawing students to the practice of proof.

At Umeå University *Jesper Boesen* defended his dissertation "Assessing mathematical creativity." The thesis consists of four papers and a preamble. Jesper claims that use of superficial reasoning seems to be a main reason for learning difficulties in mathematics. Therefore he finds it important to investigate reasons for this use and the components that may affect students' mathematical reasoning development. Assessments have been claimed to be one such component that significantly influences students' learning. This study shows that a majority of the tasks in the teacher-made assessment could be solved by successfully using only imitative reasoning. The national tests however required creative mathematically founded reasoning to a much higher extent. He also investigates which kind of reasoning the students really use, why teacher made tests emphasise low-quality reasoning and if national tests influence teachers in their development of classroom tests. This impact seems to have a limited effect.

Readers are invited to study these dissertations more closely. They are all available via the authors. We now have fourteen in all by adding the mentioned three dissertations to the eleven that have been presented in earlier issues of *NOMAD* during 2006. And more are coming later this year and in the beginning of 2007.

Future events in the Nordic Graduate School

In November, there will be a workshop about research on the use of ICT in mathematics teaching and learning at Agder University College. Invited speakers are Luc Trouche and John Monaghan and the focus will be on which theoretical frameworks can be of use in this kind of research. Nordic and Baltic doctoral students, recently educated doctors and more experienced researchers will work together for two days. All will contribute with presentations of their own studies. The outcomes of the workshop will be made available for all interested.

The NoGSME-programme of 2007

The board has planned activities for 2007 and it might be wise to book these dates already now if you want to participate. The workshops or seminars will take place on February 8-9, April 26-27, October 11-12 and November 22-23. The workshop in April will be in cooperation with The Swedish Society for Research in mathematics Education (SMDF) and deal with Mathematics and language. The summer school in

Iceland will take place in the southern parts and the dates are 4th to 10th of June. The invitation to the summer-school will be sent out in November and we expect great interest in this event. Among the group-leaders we will have Abraham Arcavi from Israel, Mariana Bosch from Spain, and Marcelo Borba from Brazil.

Mathematics didactics courses for doctoral students

During autumn 2006, Nordic students are participating in the Theory of science from a mathematics didactics perspective and Theories of teaching and learning mathematics at Agder University College. The course Perspectives on identity in learning and education research will take place at Ålborg University in 14-17 November 2006. During spring 2007 we offer the course MA607 Methods in mathematics education (15 ECTS) and this course will take place in weeks 4, 7 or 9, 12 and 16. We also hope to be able to offer courses in Sweden, Finland and Estonia. Doctoral students in mathematics education can get travel costs covered from NoGSME in the same way as before, by sending an application with an estimated budget to the director.

Mobility stipends for visits at other Nordic or Baltic universities

NoGSME offers mobility stipends for five students each year. They cover travel expenses and lodging for one month at another Nordic or Baltic university. Thus students can work with colleagues or other supervisors for some time with very low costs for the stay. We encourage all students to consider this option and to apply for a stipend (see web-page for more info, www.hia.no/realfag/forskerskolen).

Contact the board members

The board consists of one member from each of the Nordic countries, one representative from the Baltic countries and the director. You are most welcome to contact any of us if you have suggestions for activities that match our funding. On the web-page you find names of all board members. Just send an email and let us know what you would like to see among our activities.

On behalf of the board of the Nordic Graduate School in Mathematics Education

Barbro Grevholm, Director