

Editorial

The year 2015 can be said to represent an anniversary in NOMAD's history, as it marks the launch of volume no. 20. Volume 1 appeared in 1993. The first issue of volume 1 contains four papers, one being an overview of Nordic collaboration in mathematics education, seen in the light of history. This paper was written by Bengt Johansson, and the three other papers were written by Ole Björkqvist, Morten Blomhøj, and Inger Wistedt. The issue also contains a note about a Nordic research network as well as a review of two ICMI studies. It is interesting to note that all contributions in this first issue were written in a Scandinavian language (Swedish or Danish). However, the first paper in English appears already in the second issue of the first volume. In the editorial of the first issue it is written that the founders have set as a goal that the last issue of every volume should be in English. Now the picture is to a large extent reversed. There may not even be enough papers in a Scandinavian language to fill one issue per year. As the research field has become more and more international we think that this development is natural but at the same time we also think it is of value to keep up the possibility to publish in a Scandinavian language.

The first volume consists of only two issues but already from volume 2, the number of issues is up to four. This number is maintained throughout 2000, except for 1997, and sometimes with double issues. Counting from 1993 until today, the reader will have observed that there is a mismatch with the fact that we are now releasing volume 20. After the first eight years, there was a gap of three years, and volume 9 only appeared in 2004. The first issue of volume 9 reports on an important event in the Nordic mathematics education community, namely the start of the *Nordic graduate school in mathematics education* (NoGSME). In the four-five years to follow NoGSME played an important role to raise the competence in the Nordic community and to bring the members of the community closer together.

At the moment the editors of NOMAD receive a very good flow of papers, indicating a high research activity in the Nordic countries. In particular, we see a strong interest from doctoral students to submit papers to NOMAD. Since 2012 NOMAD has arranged a one-day workshop for doctoral students. This has attracted considerable interest and we notice with pleasure that several papers, that in an early version have been discussed at one of these workshops, are now already published in NOMAD or they

are on their way to be published. This year's workshop will be held on 28 April (more about this later). At the time of writing this editorial the 9th CERME Conference has just been arranged in Prague, with almost 700 participants. More than 100 of the participants came from the Nordic countries, showing that the interest in mathematics education research in our region is really large.

In this issue

Due to the good supply of papers and to avoid a too long wait for papers to get published, we have put four papers into this first issue of volume 20. The first paper is written by Anneli Dyrvold, Ewa Bergqvist, and Magnus Österholm and has the title *Uncommon vocabulary in mathematical tasks in relation to demand of reading ability and solution frequency*. The paper takes as a starting point that when one is using tests to assess students' knowledge (e.g. in PISA), the intention is to measure the students' mathematical competence, and nothing else. However, there is a possibility that tests also measure something else than mathematical competence, e.g. reading ability. In the paper the authors in particular focus on uncommon vocabulary in mathematical texts. Such uncommon vocabulary could be of two types, technical vocabulary from within the mathematical register, and vocabulary from outside of the mathematical register but not part of the students' everyday language. The paper presents a quantitative study where first, values for the variables *demand of reading ability* and *solution frequency* are calculated for each task. Second, variables that describe the number and proportion of different types of uncommon vocabulary are calculated. And third, the correlations between the variables from the first and second step are analysed. The results show that there is a correlation between demand of reading ability and commonness of vocabulary but no connection between solution frequency and commonness of vocabulary. There seems to be only coincidental correlations between amount of technical vocabulary and aspects of task difficulty.

The second paper also deals with language aspects in mathematics. This paper is written by Andreas Ebbelind and Cecilia Segerby and has the title *Systemic functional linguistics as a methodological tool in mathematics education research*. The basic idea is that there is a relation between a context and a text produced within this context. *System functional linguistics* (SFL) to a large extent builds on work by Michael Halliday, where language is seen as a resource used to accomplish specific purposes by expressing meaning in a context. The text is seen in relation to three aspects; what is going on, who is taking part, and what is the role assigned

by language. The paper builds on empirical material from two independent studies. The first study concerns the analysis of a page in a Swedish mathematics textbook for year 4 and students' reading strategies, and the second study intends to unravel student teachers' participation in different situations relevant for their studies, to study the process of student teachers becoming teachers. The two studies have been carried out independently by each of the two authors. An important motivation for the paper is to show how SFL can be used in mathematics education research. The authors emphasise that SFL has been used in by Swedish researchers in various fields earlier, such as natural science and Swedish language education but that it is hardly used in mathematics education research. Both studies reported in this paper are on-going PhD-studies.

The third paper, *Disciplined by tests*, by Gunnar Sjöberg, Eva Silver and Anette Bagger reports from a research project on the re-introduction of national testing in mathematics of 9–10 years olds in Sweden. The project investigates how traditional mathematics tests and national tests in mathematics influence pupils' mathematical learning in the compulsory school. In the project particular attention is paid to pupils in danger of not reaching the education objectives in mathematics, and their experiences of assessment and test-situations. In the article the focus is on the impact of the testing on an individual level. Three questions are addressed: What does the testing situation look like? How do children act in the testing situation? How do children talk about the testing situation? Data consists of video-recorded tests and video-stimulated recall interviews with pupils. The data was subject to discourse analysis focusing on how the pupils become subjected within different discourses and how they position themselves. Three different discourses were found to describe the testing situation; *a testing discourse*, *a caring discourse* and *a competition discourse*. The analysis shows that the three discourses co-exist and sometimes strengthen and sometimes counteract each other and thereby, produce knowledge in children about success and failure in mathematics.

In the fourth paper (in Danish), *Lektionsstudier i dansk læreruddannelse*, Charlotte Krog Skott and Camilla Hellsten Østergaard address teachers' problems with adapting to new school reforms concerning mathematics teaching. In particular they draw the attention to the need for student teachers to work with reform movements in manners that go beyond rhetoric – and the authors' contribution here is their suggestion and trial of a method to do just that. This method is one of lesson studies with an analysis side drawing on Hodgen's situated theory of mathematics knowledge in teaching. Based on an empirical try-out of the method, the authors conclude that Danish pre-service mathematics

teachers seem to more easily adopt new reform aspects concerning processes, while aspects concerning products, here combinatorial counting models, are more difficult for the student teachers to adopt in their teaching. Some of NOMAD's readers will also find it interesting that the authors take time to compare their approach to that of the more widespread theoretical construct of *Mathematical knowledge for teaching* (MKT) by Ball and colleagues.

This issue also contains a book review of the recent tribute to Ted Eisenberg, *Mathematics and mathematics education: searching for common ground*, edited by Michael N. Fried and Tommy Dreyfus. We thank our dear colleague Mario Sánchez Aguilar from Mexico City for taking upon him the task of reviewing this collection of reflections by well-known international mathematics educators. Aguilar holds himself a PhD in mathematics education from Roskilde University, and is therefore well acquainted with our Nordic mathematics education traditions. This is reflected in the review, while Aguilar at the same time provides an interesting international touch. In general, book reviews are not a regular feature in NOMAD. But we welcome them, when we receive requests that make sense to us.

Finally this issue also contains a message from the Chair of NoRME, Mette Andresen.

NOMAD workshop for doctoral students

We would also like to draw attention to the fourth workshop for doctoral students in mathematics education that will be held at the University of Gothenburg on 28 April 2015. The workshop is entitled *NOMAD as a resource for mathematics education research in the Nordic countries*, and is arranged in collaboration between the research school CUL at the University of Gothenburg and the editors of NOMAD. Participants are asked to register before 2 April. See the NOMAD web page for details.

The Editors