

# Editorial

The first issue of Volume 24 contains four articles, three in English and one in Norwegian. They are introduced below. The inflow of manuscripts is still good and there are several articles being reviewed. The work with this year's thematic issue on *The teaching and learning of algebra* is progressing according to plan and we are looking forward to present an interesting issue in the autumn, displaying some of the research activity in this field in the Nordic and Baltic region.

## Workshop for doctoral students

The eighth NOMAD workshop for doctoral students will take place at NCM in Gothenburg on May 3, 2019. The workshop will be held by the editors. Deadline for applications is April 2. More information about the workshop is to be found on the NOMAD web, see <http://ncm.gu.se/nomad-workshop>

## Thematic issue 2021

Traditionally, research on teaching has targeted either behaviors or characteristics of teachers. However, practice-based research on mathematics teaching has a different focus. Instead of observing what teachers do, practice-based approaches tend to investigate the work that is to be done and the problems that are entailed in the teaching of mathematics. One important way to improve the impact of educational research on practice is that research pay closer attention to instructional problems teachers want to solve. In the planned special issue, the aim is to discuss state-of-the-art practice-based studies of mathematics teaching that attempt to do this.

Practice-based research on teaching involves a diversity of approaches. In the Nordic countries, for example, lesson studies and learning studies have been used as a way to generate knowledge about the relation between teachers' instruction and students' learning, and action research is widely used to investigate and theorize teachers' questions derived from their own classroom practice.

The intention of this thematic issue is to bring together the Nordic field of practice-based research on mathematics teaching. We will therefore invite contributions from all Nordic and Baltic countries, covering

a broad spectrum of mathematical content from preschool to secondary school.

### *Timeline*

- June 15, 2019. Abstracts to be submitted. An abstract shall contain 300–600 words and 3–5 keywords.
- September 2, 2019. Feedback on abstracts.
- February 1, 2020. Full papers to be submitted.
- April 1, 2020. First round of reviews completed.
- May 1, 2020. Feedback to authors from editors.
- October 1, 2020. Submission of revised papers.
- January 10, 2021. Second round of reviews completed.
- February 10, 2021. Feedback to authors from editors.
- April 1, 2021. Final revisions to be completed.

To be accepted for this issue papers must meet the regular requirements of *Nomad* [see <http://ncm.gu.se/5978-2>]. Submitted papers will be reviewed by at least two other researchers through a double-blind peer review. Authors are expected to participate in the review process by reviewing other contributions. Authors who wish to contribute to this issue are invited to send a brief outline of the intended paper, in the form of an abstract, to Angelika Kullberg [[angelika.kullberg@ped.gu.se](mailto:angelika.kullberg@ped.gu.se)] no later than June 15, 2019.

Editors for this thematic issue of *NOMAD* will be

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Janne Fauskanger will participate in the group of editors as one of the regular editors.

## In this issue

In their article *Studying concept elements as a way to trace students' conceptual understanding*, Annika Pettersson, Yvonne Liljekvist and Jorryt van Bommel discuss the concepts of *concept definition* and *concept image*. They suggest an elaboration of *concept element* as an approach to find a way to theoretically describe students' understanding. In the study, the concept element construct was tested in a setting with secondary school students working with linear functions. Their empirical findings reveal traces of students' concept elements regarding linear functions. Some concept elements appeared early in the process while others appeared after a cognitive conflict. The detailed grid on which concept elements are defined was found to be a useful tool, yielding new insights into students' knowledge and understanding.

The second article of this issue, *Development of algebraic thinking: opportunities offered by the Swedish curriculum and elementary mathematics textbooks*, is written by Kajsa Bråting, Lars Madej and Kirsti Hemmi. They have analysed big ideas of algebra and progression within them from Swedish national mathematics curriculum and two mathematics textbook series for grades 1–6 in Sweden. The results shed light on how the development of algebraic thinking is addressed in the analysed materials. For example, according to the results, generalized arithmetic is only scarcely addressed in the curriculum and in the textbook series.

In order to characterize teaching designs intended to develop other mathematical competencies *via* problem solving and reasoning, Johan Sidenvall in his article *Literature review of mathematics teaching design for problem solving and reasoning* presents a research review. It was conducted on 26 articles published in seven top-ranked journals in mathematics education. Thematic analysis was used to analyse the articles. Sidenvall found that all but two studies had goals concerned with developing students' mathematical competencies. The overarching ideas of the identified emergent claims regarding the achievement of stipulated goals, concerned scaffolding students' learning and letting students construct their own mathematics. Hypothetical learning trajectories, realistic mathematics education, theory of didactical situations, and zone of proximal development were the theoretical arguments found to support the claims made in the articles.

The fourth article is written in Norwegian. In the article *Ambisiøse undervisningspraksiser i Teacher time out* Janne Fauskanger reports on ambitious teaching practices that teachers have an opportunity to practice through the routine *Teacher time out* (TTO). 139 TTOs from professional development work with Norwegian teachers have been analysed. The analyses indicate that the teachers in TTOs have an opportunity to

practice the following teaching practices: 1) eliciting students' mathematical ideas, 2) orienting students towards each other's ideas, 3) responding to students' mathematical ideas, 4) evaluating students' mathematical understanding, and, in addition, developing their general teaching competence.

The Editors