

# Editorial

## In this issue

The first issue of 2018 includes four articles. The variance in mathematical topics, research methods and participants' grade levels in the four papers illustrates the wide scope of mathematics education research in the Nordic countries.

The first article entitled *Preschoolers exercising mathematical competencies* is written by Anna Ida Säfström. Based on the statement that the mathematical ideas that emerge in children's free and guided play – if they are linked to formal mathematics – can be a powerful basis for mathematical development, Säfström's study aims at gaining understanding of children's mathematical practices by describing the interplay of key mathematical ideas. More specifically, she studies how young children exercise mathematical competencies in the intersection of early arithmetic and geometry. Her results indicate that children use spatial representations when reasoning about numbers and in addition, they are able to connect spatial and numerical structures. Furthermore, it is shown that children not only use and invent effective procedures, but they are also able to explain, justify and evaluate such procedures.

This issue's second article is written by Magnus Fahlström and Lovisa Sumpter and has the title *A model for the role of the physical environment in mathematics education*. The authors expand the didactical triangle, usually consisting of the three actors – teacher, student and content – to a didactical tetrahedron by including the physical environment as a fourth actor. The new model is then tested through a literature review on articles examining physical environment and mathematical education. The authors examine the role of the physical environment in relation to the other actors and the interaction between them, as presented in the articles. They conclude that the physical environment plays different roles, for example, in relation to students and teachers, it can either facilitate or obstruct the interaction between them. The authors find that the expansion of the didactical triangle enabled them to characterize the role of the physical environment in a useful way and thereby served a purpose.

The article *Discourses in school algebra: the textbooks' different views on algebra and the positioning of students* is written by Kristina Palm Kaplan. The purpose of the study reported here is to understand the school algebra offered in Swedish mathematic textbooks for grade 8. Using a social semiotic perspective, textbook tasks are analysed with a method

inspired by Systemic Functional Linguistics. Five school algebra discourses are identified: symbolic discourse, geometrical discourse, arithmetical discourse, (un)realistic discourse, and the scientific discourse. It is argued that these offer different views on the nature of algebra and the positioning of students.

The fourth article is written by Jani Hannula and has the title *The gap between school mathematics and university mathematics: prospective mathematics teachers' conceptions and mathematical thinking*. He studied Finnish prospective mathematics teachers' conceptions of school and university mathematics and their mathematical thinking. The findings of the study give insights into secondary-tertiary transition from the perspective of mathematics teacher education. In addition, the results show how the prospective teachers use formal and informal aspects in their mathematical thinking. The results of the study highlight the need to continue in developing mathematics teacher education to pay more attention to connecting school and university mathematics as well as informal and formal aspects of mathematics.

### Thematic issue of NOMAD 2020 – call for papers

Several researchers in the Nordic countries have developed an interest in the field of special educational needs in mathematics. There is a Nordic network of researchers in this field, which holds conferences every second year. Today, it has passed more than ten years since the first, and so far only, thematic issue of NOMAD in the field of special educational needs in mathematics. We are therefore pleased to announce the plans for a second thematic issue on research in this area.

The Nordic research in the area contains among other things cultural, social, psychological, and educational aspects of teaching and learning. This special issue represents a possibility for collecting current work regarding what is known, what research in the Nordic countries are focusing on, and which methods and theories are used. This would constitute an important contribution and a new starting point for a continued development of research in the area of special needs in mathematics. The research accepted for publishing should address issues of relevance for practice, and contain implications for the challenges facing kindergartens, schools, and support on individual, group and/or organization level. A central question concerns who the students in need of support are, how they are defined, and which challenges and possibilities teachers, kindergartens, schools, and the society face in supporting these students. This might be related to issues of inclusion, exclusion, diversity, equity, and segregation.

## *Timeline*

- Abstracts to be submitted: September 1, 2018  
An abstract shall contain 300–600 words and 3–5 keywords.
- Feedback on abstracts: October 1, 2018
- Full papers to be submitted: March 1, 2019
- First round of reviews completed: June 1, 2019
- Feedback to authors from editors: August 20, 2019
- Submission of revised papers: November 1, 2019
- Second round of reviews completed: January 5, 2020
- Feedback to authors from editors: February 1, 2020
- Final revisions to be completed: April 1, 2020

Information to authors and reviewers can be found at: <http://ncm.gu.se/node/490>. 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.

Editors for this thematic issue of *NOMAD* will be

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Ewa Bergqvist will participate in the group of editors as one of the regular editors.

The editors

