

About this issue

The three papers in this issue deal with mathematics education related to different ages – they range from pre-school to upper secondary school – and focus on different actors – students, teachers and head-teachers.

In the first article Head teachers' conception of gifted students in mathematics in Swedish upper secondary school Linda Mattsson addresses the issue of giftedness in mathematics. The discussion on special needs education has in Sweden mainly focused on student difficulties. Only lately has the discussion also involved the provision for mathematically gifted students. This may partly be due to the recent formation of special programs in mathematics in upper secondary school. The relatively little attention to giftedness, and hence, a lack of established definitions of giftedness in mathematics forms the background of Mattsson's study. The article presents a survey study of how randomly selected head teachers, from upper secondary schools that offer mathematically intensive study programs, characterise and detect mathematically gifted students. The results show that the teachers characterise such students both by cognitive attributes (e.g. creative and logical ability) as well as by non-cognitive attributes (e.g. motivation). The teachers detect mathematically gifted students in several ways, for instance, by their initiative for engaging in mathematics, their inclination to orally reason about mathematics, and by test results. The results are found to be in accordance with findings in international studies and Mattsson concludes that the current study, as well as international research, is important to the ongoing discussion regarding giftedness in mathematics in Sweden.

In the second article Understanding and solving multistep arithmetic word problems by Guri Nortvedt you find a study of Norwegian students' difficulties with multistep arithmetic problems. The study explores relationships between students' capability to solve multistep arithmetic problems, their reading comprehension, and numeracy. Two different sets of data are used. The first consists of results from national tests in reading and numeracy for a representative sample of 1,264 grade eight students. Based on their test scores students are sorted into four groups; below/above average in reading and numeracy respectively. Nortvedt identifies ten multistep arithmetic problems in the numeracy test and carries out a correlation analysis between students' scores regarding reading, numeracy and multistep arithmetic word problems. The ability to solve multistep arithmetic problems was found to have strong positive correlation to both numeracy and reading. The second set of data consists of verbal

protocols, collected in interview settings, from 19 students working on word problems. The analysis of the verbal protocols focused on students' solving of one of the problems. Nortvedt identifies three main areas of difficulties – representing quantities in a word problem text, retrieving number facts from memory, and performing basic operations. The first of these can be related to students' reading abilities and Nortvedt suggests that greater attention should be given to aiding students in interpreting text elements, e.g. regarding quantities and relations, when working with text problems.

The study presented in the article *Orchestrating mathematical activities in the kindergarten: the role of inquiry* by Martin Carlsen examines the role of inquiry in a developmental research project – *Teaching Better Mathematics* – where teachers and university researchers/didacticians collaboratively work with improving mathematics teaching. The work in the project is characterised by a cyclic model of designing – acting – observing – reflecting – feedback, called the inquiry cycle. Data in the form of video recordings, field notes and reflection notes have been collected from one inquiry cycle in the project. Carlsen analyses the interaction and collaboration in the project group (three kindergarten teachers and one researcher/didactician) with a certain focus on the role played by inquiry. It is found that inquiry plays a significant role in the orchestration of the mathematical activity in the kindergarten, in every phase of the inquiry cycle.

In this issue Uffe Tomas Jankvist reviews *Theories of mathematics education: seeking new frontiers* (B. Sriraman & L. English, Eds.). The book consists of previously published papers with added introductions and comments. In his review Jankvist discusses the potential usefulness of the book from the point of view of both a doctoral student and an established researcher in mathematics education.

The issue concludes with a report of the current events in the Nordic Mathematics Education Community by Frode Rønning. As usual, short presentations of recent theses in mathematics education are given.

The editors