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New and Noteworthy Books from Sense Publishers

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NEW BOOKS FROM SENSE PUBLISHERS

HOW FINNS LEARN MATHEMATICS AND SCIENCE (288 pages)

Erkki Pehkonen, Maija Ahtee and Jari Lavonen, *Helsinki University, Finland*

The Finnish students' success in the first PISA 2000 evaluation was a surprise to most of the Finns, and even people working in teacher education and educational administration had difficulties to believe that this situation would continue. Finland's second success in the next PISA 2003 comparison has been very pleasing for teachers and teacher educators, and for education policymakers. The good results on the second time waked us to think seriously on possible reasons for the success. Several international journalists and expert delegations from different countries have asked these reasons while visiting in Finland. Since we had no commonly acceptable explanation to students' success, we decided at the University of Helsinki to put together a book in order to give a commonly acceptable explanation to our students' success in the international PISA evaluations. It tries to explain the Finnish teacher education and school system as well as Finnish children's learning environment at the level of the comprehensive school, and thus give explanations for the Finnish PISA success. The book is a joint enterprise of Finnish teacher educators. The explanations for success given by altogether 40 authors can be classified into three groups: Teacher and teacher education, school and curriculum, and other factors, like the use of ICT and a developmental project LUMA. The main result is that there is not one clear explanation, although research-based teacher education seems to have some influence. But the true explanation may be a combination of several factors.

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HOW SHOULD I KNOW? *Preservice Teachers' Images of Knowing (by Heart) in Mathematics and Science* (252 pages)

Kathleen T. Nolan, *University of Regina*

Elementary preservice teachers' school experiences of mathematics and science have shaped their images of knowing, including what counts as knowledge and what it means to know (in) mathematics and science. In this book, preservice teachers' voices challenge the hegemony of official everyday narratives relating to these images. The book is written as a parody of a physical science textbook on the topic of light, presenting a kaleidoscope of elementary preservice teachers' narratives of knowing (in) mathematics and science. These narratives are tied together by the metaphorical thread of the properties of light, but also held apart by the tensions and contradictions with/in such a critical epistemological exploration.

New Directions in Mathematics and Science Education volume 9

ISBN 978-90-8790-213-1 hardback USD147/EUR135; ISBN 978-90-8790-212-4 paperback USD49/EUR35

NOTATIONAL KNOWLEDGE: Developmental and Historical Perspectives (288 pages)

Eva Teubal, *Hebrew University, Jerusalem, Israel*, **Julie Dockrell**, *Institute of Education, London, UK*

Liliana Tolchinsky, *University of Barcelona, Spain*

Permanent external representations in the form of drawings, maps, musical scores, figures, graphs, writing, numerals, hallmarks and signatures are part of our daily landscape and permeate most social activities almost from the moment we are born. This book is about humans' appropriation, understanding and use of external representations. The authors reflect on the peculiar features and representational mechanisms of notational systems based on cultural conventions such as musical notation, graphs, writing, numerals and mathematical notation as well as on unique notations that children create in new situations. There are two chapter clusters in the book. The first cluster considers these systems from a historical perspective. Authors focus on the characteristics of these systems in different cultures and at different times and analyze the ways in which notation systems evolve and transform our social interactions, our ideas about language and about other domains of knowledge. The second cluster of chapters takes a developmental perspective. In these chapters the authors focus on the individual appropriation of these systems and highlight the interest for studying permanent external representation as a domain of human development. The book will be useful for students of psychology, philosophy, linguistics and education and for every one interested in understanding ways in which knowledge is generated, recorded and scrutinized.

ISBN 978-90-8790-009-0. hardback USD147/EUR135; ISBN 978-90-77874-77-6. paperback USD49/EUR45

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